DOCUMENT RESUME

ED 207 811 SE 035 546

TITLE Feed, Need, Greed: Food Resources & Population. A High School Curriculum.
INSTITUTION Science for the People, Cambridge, Mass. Boston Chapter.
PUB DATE 80
NOTE 109p.; Numerous copyrighted cartoons removed. Photographs may not reproduce well. Prepared by the Food and Nutrition Group.
AVAILABLE FROM Science for the People, 897 Main St., Cambridge, MA 02139 ($5.00 plus $0.50 postage).

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Consumer Economics; Developing Nations; Economics Education; *Environmental Education; *Food; Instructional Materials; Interdisciplinary Approach; Nutrition; *Population Education; Science Curriculum; Science Education; Secondary Education; *Secondary School Science; *Social Studies; *Teaching Guides; World Problems
IDENTIFIERS Science and Society

ABSTRACT

Four units, teacher's notes, and a comprehensive glossary provide background information and activities aimed at raising the awareness of high school students and teachers regarding the nature of the food system and its relationship to nutrition, population, and resources. These non-sequential units analyze the economic and political factors surrounding world food and population issues. Examined are: (1) myths of overpopulation; (2) quantity and quality of food eaten by underfed and overfed nations; (3) the role of large, multinational corporations in the production, cost, and distribution of food; and (4) alternative lifestyles. Designed as a supplement to the existing curriculum, units may be used in social studies and science classes. Informative charts, graphs, and illustrations are also provided. (Author/DC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED207811

FEED, NEED, GREED.

Food, Resources & Population

A HIGH SCHOOL CURRICULUM

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

X Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Susan W. Tafler

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

by
the Food & Nutrition Group,
Boston Science for the People

SE 035 546

SCIENCE FOR THE PEOPLE
897 Main Street • Cambridge MA 02139

Introduction

ACKNOWLEDGEMENTS

Writers/Editors
Nancy Brown
Steve Berger
Joel Cohen
Joel Kandel
Marvin Lew
Connie Phillips
Janet Schwartz
Sue Tafler
Claire Verstraete

Editorial Coordination and Production
Connie Phillips
Sue Tafler

Contributors/Supporters/ Helpers
Jeanne Gallo
Terri Goldberg
Kathy Greeley
Chuck Koplik
Janet Roache
Robert Shapiro
Margo Simon
Rachel Skvirsky
Ray Valdes
Betsy Walker
Mark Wilson
Carol Wintle

Design
Ray Valdes

Photos
Sue Tafler

Typesetting
Zafra Graphics
186 Lincoln St.
Boston, MA 02111

A special thanks to Brenda Lansdown, who provided that kernel of inspiration when it counted most.

The Food and Nutrition Group of the Boston chapter of Science for the People has revised its alternative curriculum for high school students written in 1974 entitled *Feed, Need, Greed — Where Will It Lead?* Our goal is to raise the awareness of students and teachers regarding the nature of the food system and its relationship to nutrition, population and resources. Much of the information we include is not available as part of contemporary curricula.

We feel it is necessary to counter the majority of nutrition texts which are clearly pro-industry and which blame the consumer for poor eating habits and health problems. The common myths on nutrition must be examined. For example, it is a myth that we make free choices about what we eat, that overpopulation and hunger result from ignorance, and that multinationals (such as Nestle) truly serve the nutritional needs of developing countries.

You cannot tell students that food additives may be harmful without exploring why the food industry put additives into their products. Similarly, you cannot tell students about hunger in a nutritionally poor country like Mexico without discussing the exploitation of Mexican labor and land by U.S. corporations. We feel a political analysis of food and population issues is essential to understanding the present world.

It is necessary to extend the liberal, simplistic "health food" approach to nutrition which divides foods into "healthful" and "unhealthful" without discussing the political and economic context. We want to discuss whole foods and world hunger together. We feel it's important to avoid the standard conclusions that world hunger is caused by overpopulation, underdevelopment and ignorance.

Feed, Need, Greed is divided into four units which are composed of sections which can be used independently of each other, or mixed and matched. Many units and sections can enrich the required material of social studies, biology or science and society courses. Built into *Feed, Need, Greed* are opportunities for active learning so students can incorporate their own experiences into a subject. We have included notes on each section for the teacher, along with objectives, cross-references, background notes, and suggestions for additional classroom discussions and political analysis.

We feel *Feed, Need, Greed* is unique because it not only encourages critical thinking but it also explores pathways toward personal, community, national and global change.

—Sue Tafler and Connie Phillips

Contents

UNIT I **The Numbers Game: Population and Resources**

Section 1	*Exploding the Population Myth*	2
Section 2	*Why Do People Have Children?*	7
Section 3	*Gobbling Up the Earth: Resource Limitations*	11

UNIT II **The Lean and the Lumpy**

Section 1	*The Price of Hunger*	16
Section 2	*Yesterday and Today: Changing Eating Patterns*	19
Section 3	*Salty Blues*	21
Section 4	*The Big Killers: Sugar and Fat*	25
Section 5	*Food From a Factory*	31
Section 6	*What Are They Putting in My Food?*	36

UNIT III **Nutritional-Industrial Complex**

Section 1	*Tastes Like Love: TV Ads*	42
Section 2	*Survival of the Fattest*	44
Section 3	*Harvest of Shame*	50
Section 4	*Bottle or Breast?*	54

UNIT IV **Building a New World**

Section 1	*Introduction to Change*	58
Section 2	*Choosing What You Chew*	60
Section 3	*Gather Together: Community Action*	65
Section 4	*Future Shock*	71
Section 5	*Global Visions*	78

Glossary 84

Science for the People is a national organization working to build a science and technology responsive to people's needs. Composed of scientists, health care workers, teachers, students and community activists, the organization presses for progressive social change on such issues as nutrition, nuclear power, genetic engineering, and sociobiology. Science for the People has chapters throughout the U.S. and publishes a bimonthly magazine, *Science for the People*, from its national office at 897 Main Street, Cambridge MA 02139. Tel: 617-547-0470.

© Copyright 1980 by Science for the People. Material may be reproduced freely for educational and progressive purposes, provided the source is properly credited.

Teacher's Notes

We have designed *Feed, Need, Greed* in such a way to encourage teachers to xerox and run-off as many copies of each student section as needed for a class. Of course, we would also like to see multiple copies of the book bought to help us pay our production costs. We also encourage you to recommend the curriculum to other teachers.

Reading the Teacher's Notes at the outset will clarify our political perspective and educational method and will also help plan the course of action most suitable to the class. In the Teacher's Notes we recommend audiovisual and resource materials (which may require pre-ordering). In addition, some activities require materials preparation by the teacher, such as bringing Pringles potato chips and different kinds of peanut butter for activities in Unit II.

A large part of the vocabulary used in *Feed, Need, Greed* is not generally found elsewhere in high school curricula. Words describing political and economic concepts are used freely in explaining food, population and resource issues. Expanding students' vocabulary now will enable them to understand words they may encounter in the daily paper or later in life. Students should be encouraged to look over each section before they read it and write down the boldface words and define them using the glossary at the end of the book. The teacher should provide copies of the glossary for every *Feed, Need, Greed* activity. Students can keep their copies in notebooks or a classroom set could be kept in a special place for reference. Developing and using this vocabulary will enable students to analyze more critically the world around them. Slow readers will be especially helped if new and potentially difficult words are defined beforehand.

We would appreciate your comments and suggestions on the content and methods of *Feed, Need, Greed*. Your feedback will be valuable input for our next edition.

*Where or how did you first learn about *Feed, Need, Greed*?

*What grades and subjects do you teach?

*Did you use *Feed, Need, Greed* in its entirety?

*Which units and sections did you select? Why?

*Did *Feed, Need, Greed* activities fit into your required curriculum? Where and how?

*Which units and sections were successful in your classes?

*Did you make any changes or additions that would be helpful to us in future revisions?

*Would you recommend *Feed, Need, Greed* for other teachers? Why or why not?

COPYRIGHTED CARTOON REMOVED

Unit I Section 1

Exploding the Population Myth

Objectives:

1. Students will learn to calculate population density, geometric and arithmetic increases.
2. Students should learn that overpopulation does not depend solely on population density.
3. Students should understand that arithmetic and geometric increase are the basis of Malthusian theory.
4. Actual population changes, planned parenthood, and technological advances have not supported in history the Malthusian theories. Malthus was wrong.
5. Malthus' ideas are alive and currently resurrected by neo-Malthusians. He is still popular because his theories support those who benefit from the *status quo*.

Timetable: One class period.

Population density calculation

It may help your students guess at a rank order for population densities for the four sample countries if they try to recall any stereotypes or general images they have of these countries. You may want to remind them of images in textbooks and magazines: fields of Dutch tulips with windmills vs. starving bodies on the streets of Calcutta, India. Many of their images actually involve misconceptions: even though Japan is Oriental, it is heavily industrial and quite prosperous; even though Brazil is huge, much is uninhabitable jungle.

Be ready to guide your students through long-division and lost decimal points. Calculators may help but should not be necessary.

Answers:

a. Netherlands	319	people/sq.	km.
b. Brazil	11	"	"
c. Japan	301	"	"
d. India	167	"	"

Clearly, population density *per se* is not the cause of hunger.

For up-to-date data on more than these four countries, see the latest *U.N. Demographic Yearbook*.

Malthus, Ehrlich, and Hardin

Thomas Malthus (1766-1834) was an English minister and economist. He published in 1798 "Essay on the Principle of Population as it Effects the Future Improvement of Society." He wrote the essay to refute the idea put forth by some writers of his time that life on earth could be brought to perfection by improvements in the social order. He believed that population would inevitably increase at a rapid rate unless checked by late marriages, or by factors that shorten life, such as war, famine and disease.

His theory was popular and was applied by Darwin to the biological struggle for existence which brought about natural selection. Nineteenth century reformers saw the exact opposite of Malthus' theory in the apparent rise in the standard of living in Europe, but modern-day neo-Malthusians have again resurrected the theory as the basis for their arguments for population control.

Paul Ehrlich, Stanford ecologist known as the author of the *Population Bomb*, is one of the leading modern neo-Malthusians. He doesn't see the limit to population as being based solely on the limited potential of food production but instead points to the deterioration of our environment and depletion of resources. He blames population growth for wrecking the ecological balance (ignoring the fact that pollution is increasing much faster than population). Even though he is concerned with stopping exploitation of the environment, his first priority is clearly and firmly population control and he believes the U.S. must use its political power in developing countries to enforce population control.

Garret Hardin is another popular neo-Malthusian. He was originally a bacteriologist and now writes on ecological and environmental issues. He is well known for writing "The Tragedy of the Commons."

He has a particular analysis of the so-called population crisis referred to as "lifeboat ethics" which essentially states that:

> " . . . each rich nation amounts to a lifeboat full of comparatively rich people. The poor of the world are in other, much more crowded lifeboats. Continuously, so to speak, the poor fall out of their lifeboats and swim for a while in the water outside, hoping to be admitted to the rich lifeboat, or in some way benefit from the 'goodies' on board. What should the passengers on a rich lifeboat do? This is the central problem of the ethics of a lifeboat."

Hardin assumes basically that overpopulation causes resource scarcity and that a class structure is desirable and necessary to make a better life for future generations. The lifeboat ethic implies a "let them starve" attitude.

Class discussion: You may wish to introduce the concept of lifeboat ethics for discussion by your class by reading out loud the paragraph above. Ask the leading question: what should the passengers on the rich lifeboat do? Pose the question: Does population density cause hunger?

Class discussion of human nature

Discuss with your class what human nature is. Ask if they believe poverty is natural. Many of them may have been exposed to church views on this subject in religious school classes.

For information to *combat* the current push by sociobiologists to try to show that human behavior is in our genes, order the Sociobiology packet from the Science for the People office, 897 Main Street, Cambridge MA 02139.

Class discussion of class structure and capitalism

We have found in discussing with our own classes issues of economics and political decision-making that few students have any idea of who owns or runs anything. The following is an oversimplified class analysis you might want to use:

Capitalists are the class of people who either own or control the major units of the economy. They are also called the

ruling class or *corporate class*. It consists of 1.5% of the population and includes their "lieutenants": the managers who help this class control the economy and the State. The government can be seen as the arm of the ruling class even though this goes against the usually stated ideals of democracy. Illustrations to make this point are the favoring of business interests over the consumer in government regulations, the responsiveness of Congress to corporate lobbying, military actions in foreign countries to further expanding business abroad, as well as the protection of personal property. The ruling class owns in their own names 80% of all stocks plus vast holdings in other countries. They dominate the boards, commissions and committees that control production, education, communications and natural resources in this country and in the world.

80% of the members of the labor force are members of the **working class** who produce all the material goods and services that maintain our civilization. The working class is composed of those people who do not own or control the means of production and have to sell their labor power, their ability to work, to those who do. They are paid in wages which are always less than the wealth they create for the ruling class by their labor.

The **middle class** does exist as a group with a rather ambiguous class position. The white-collared and well-educated, professionals, teachers and technicians are relatively privileged but nonetheless are not in control. Some in the middle class (such as lawyers and economists?) may *think* they run the show. Some individuals in this class actually consider themselves workers while others identify more with the capitalists. They may vacillate as to which class they will support depending on how circumstances favor the interests of the middle class.

You may want to introduce to the discussion specific examples of types of work: the Rockefellers and Fords, a counterperson at a MacDonald's, a factory worker in Taiwan or Hong Kong sewing clothes for the U.S. market, a physician, a U.S. Senator.

COPYRIGHTED CARTOON REMOVED

Unit I Section 2
Why Do People Have Children?

Objectives:

The student should become aware that:
1. Population control "experts" have usually failed with their birth control programs because they have not accepted the realities of the lives of the people subject to their programs and they do not question the social and economic systems of the countries within which they are working.
2. Poor people (in India for example) have many children not out of stupidity but because they correctly feel children are economically necessary.
3. The circumstances of a family in India contemplating having children differ considerably from the circumstances of an American family such as those of the students.
4. The motivation of a person to want to have children or not is culturally, socially and economically based.

Timetable: 15 minutes brainstorming introduction, followed by homework, and one-two full class periods for discussion.

Background information:

Before having the students do the reading, have the class brainstorm on the blackboard as many possible answers to the question "Why do people in poor countries have so many children?". After reading the story the class can return to the list and cross out or circle various answers according to what they have learned. (See teacher's notes page iii.)

Story source: Mahmood Mamdani, *The Myth of Population Control: Family, Caste, and Class in an Indian Village*. Monthly Review Press, New York and London, (Modern Reader paperback edition) 1972.

We have tried to help students understand what motivates "those people over there" (India) through discussion questions which focus on their own family experiences.

Values Clarification

The "agree or disagree" opinions are meant to be stereotypic and we certainly do not agree with many of them ourselves. Some have been borrowed freely from classroom activities suggested by the Population Reference Bureau (1337 Connecticut Avenue NW, Wash. D.C. 20036) which is a strong force for population control in Washington and a long time recipient of funds from the Rockefellers.

Unit I Section 3
Gobbling Up the Earth: Resource Limitations

Objectives:

The student will learn that:

1. The physical world is made of the earth's resources; some are renewable, some are non-renewable.

2. The American economy uses a disproportionate "share" of the world's resources: This results in hardship to the exploited countries.

3. The "Western" lifestyle is often considered a model by developing countries.

4. At present, access to resources is limited to a small fraction of the world's population. If the present situation continues, this will lead to depletion of the world's resources.

5. Solutions to resource problems can begin with changes in personal lifestyle, but no real solutions are possible without changes in the global market economy controlled by multinational corporations.

Timetable: One class period plus homework (or another class period)

Background information:

Brainstorming is a wonderful teaching tool. It permits a versatile, creative, mind-expanding way of thinking. You want to generate a large volume of ideas, half-ideas generate whole-ideas. *Values Clarification: A Handbook of Practical Strategies for Teachers and Students* (S.B. Simon, L.W. Howe, H. Kirschbaum. Hart Publishing Co., N.Y., 1972), p. 204 details the usefulness of this technique. Here is a quick list of pointers:

(a) express no negative evaluation
(b) work for quantity
(c) expand on each other's ideas
(d encourage zany, far-out ideas (these can be tamed; the reverse is not true)
(e) record each idea
(f) set a time-limit

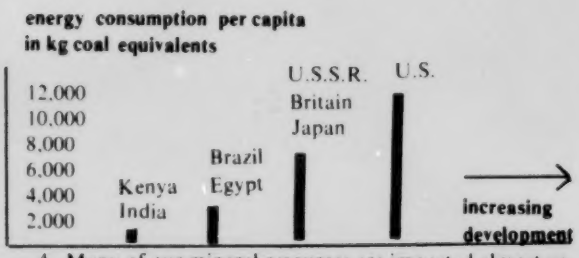
Brainstorming is also used in Unit II, section 1 and later units.

Facts and statistics to illustrate the Western Lifestyle

After or during the reading of the text on resources throw out to your students selections from information below. This will help the students return to the brainstormed list on the board and better separate the items into necessities and luxuries:

1. Certain foods we eat are grown for us in less developed countries to that country's detriment. **Cash crops**, such as coffee, tea, cocoa, herbs, spices, bananas, sugar, cotton and rubber, are grown by large landowners and cannot form the basis for a healthy diet. Farmers who work cash crops are most often poor and cannot afford to buy the food needed to feed their families. Land which grows cash crops could grow food for local people.

2. The U.S. has only 6% of the world's population; yet it consumes 61% of the world's annual production for natural gas (although this figure is changing due to findings of large gas reserves in the southwest) and 35% of the world's petroleum, needed for oil-based products.



4. Many of our mineral resources are imported almost entirely from less developed countries. 85% of our chromium comes from South Africa and Zimbabwe (formerly Rhodesia); 90% of our cobalt comes from Zambia and Zaire. Both cobalt and chromium are used to make steel. Mining mineral resources in mineral-rich, poor countries is often controlled by American corporations who reap the profits. The U.S. carefully watches the governments of these countries and gives financial support (or arms or food) only to those which serve the interests of U.S. corporations.

5. The average American consumes 212 lbs. of meat and poultry per year, the most expensive form of **protein**. Only about 8-10% of the vegetable matter eaten by an animal is converted to muscle (meat) and the rest is burned up during metabolism or helps synthesize hair, blood, etc. The average American consumes, as a result of having a high-meat diet, nearly *3.5 times* the vegetable matter the average person from India or Africa eats.

We have chosen these various facts because they are likely to spark controversy about solutions and they dramatically illustrate inequality of distribution. Ask students to react to them.

It's important that students are made to realize the implications of resource exploitation in terms of their own personal lifestyle. As they explore differences between necessities and luxuries and, hence changes in their own lifestyles, students can discuss ways to lessen the strain on the earth's resources.

It's also important for the teacher to stress that individual changes, like having one less radio in the house, are only an incomplete beginning. Students should not be encouraged to feel guilty at having a lot at another's expense, but to see the system that promotes spiraling consumption in a world faced with shortages.

Synthetics made from coal tar are non-renewable because fossil fuels have an exhaustable limit. There's only so much. One of the many reasons oil is increasingly expensive is because it's further down in the ground as more and more is extracted and it costs more to go deeper; also, the oil at the bottom of the well is thicker and more viscous and therefore needs more refining which costs more money.

We define Western lifestyle as a consumer-oriented, sedentary one. The majority of the world's people have a lifestyle centered around survival activities — work, food, shelter, children, family. This contrasts to the way industrialized people spend time in school, eating out of packages and restaurants, leisure and recreation. Lack of responsibilities to a family unit and its survival leads to a completely different set of morals, mental and physical health, and attitudes toward the world.

Unit II Section 1
The Price of Hunger

Section 1 will focus on problems of undernutrition while sections 2 - 6 deal with overnutrition or the type of malnutrition most common among Americans.

Objectives:

Students will learn that hunger and undernutrition exist in the U.S. and are problems of poverty and low income as well as basic lack of knowledge.

Timetable: (one to two class periods) Activity 2 requires out-of-class research projects. Class time should be allowed before and after to plan investigations and to discuss findings. Activity 1 can be done in one class period.

See Unit I, Section 3 (page iii) for pointers on brainstorming.

Rather than spending a lot of effort trying to make students understand the magnitude of starvation in the world or feel compassion for the unfortunates "over there" (which can easily lead to nonproductive guilt feelings), we want to bring the problems closer to home and talk about Americans who cannot afford enough food, deficiencies common among American teenagers, and the reverse situation whereby too much can also be bad (e.g. obesity).

The following chart tries to logically divide up the problems of hunger:

IN:	THE MOST PEOPLE WHO SUFFER:	SOME OF THE CAUSES
	UNDERNUTRITION	
developed countries	elderly, migrant workers, poor people	inflation, agism, lack of Federal support programs
	OVERNUTRITION	
developed countries	50% of Americans (esp. teenagers, middle-agers)	promotion of unhealthful lifestyles and diets by agribusiness corporations, increased comforts — sedentary lifestyles
	UNDERNUTRITION	
Less developed countries	infants, children, pregnant women	lack of healthful diets due to: unjust economic systems (very few rich, large numbers poor), exploitation by developed countries (eg. cash cropping)
	OVERNUTRUTION	
Less developed countries	A few urban elites	imitation of Western lifestyle and diet; sedentary lifestyle

The above chart could be replicated, distributed and discussed with a class whose interest in high. Completing the chart by discussing the *effects* of the problems would be challenging to a motivated class.

Definitions: (to be used in discussion of brainstorming — Activity 1)

It is sometimes helpful to get our terms straight. The following definitions are based on those of the U.S. Senate Select Committee on Nutrition and Human Needs.

Hunger — subjective feeling that results from an individual's lack of food at a particular point of time — used interchangeably with "undernutrition" and "malnutrition" to describe general and prolonged or chronic nutritional deprivation

Undernutrition — damage or risk of damage to mental or physical health resulting from failure to meet the total nutrient requirement of an individual

Malnutrition — consumption of an insufficient or excess quantity of food or of one or more of the essential nutrients

Starvation — state of advanced undernutrition, the effect of which is wastage of body tissue and ultimate death (see definitions of ***kwashiorkor*** and ***marasmus*** in student text)

U.S. population — 222.5 million (1980).

Activity 2 — I Couldn't get by on that little money!

Activity 2 discussion should be done with sensitivity towards those students for whom class distinctions is apparent and embarrassing. However, encouraging class members to talk from personal experience could prove fruitful if done tactfully. Your class's perspective will be very different in a well-to-do suburb where students have unlimited spending money for snacks. In such communities there is the psychological dimension of comparative poverty where students may avoid free lunch programs because of the stigma attached.

Especially if you teach in an inner-city school, there are many resources available for supplementing family income and it may be appropriate for your class to investigate food aid opportunities.

1. See phone book for state and federal government listings.
2. Food Stamp Hotline 1-800-882-1223.
3. Low Income Services
4. Department of Education, Bureau of Nutrition

Rising food prices is an appropriate topic of discussion for this activity; even students can cite examples of escalating prices in their own experiences. Inflation and dependence on fossil fuels is only part of the explanation. The following facts may help clarify the issue:

Vertical integration means top-to-bottom control and is well illustrated by the corporation Tenneco (write for their annual report); Tenneco has been able to invest profits from natural gas, oil, pipelines and freighters into all aspects of agribusiness: fertilizer chemical plants, farm machinery, process-

ing and packaging plants, wholesale markets, and its own farm land (Sun Giant brand). Vertical integration allows a company to make profits "from seed to table" with virtually no competition. They are also able to write off capital losses of their agribusiness ventures against their other subsidiaries.

Concentration means the domination of entire aspects of food production by a few large firms. For example, 80% of vegetables in the U.S. are grown under contracts to the giant processors. Six grain dealers buy 90% of the grain. This monopoly power allows the giants to drive out competition and set high prices. Economists estimate food prices may be several billion dollars higher because of monopoly control.

Tax laws favor agribusiness profits and the banks favor agribusinesses over small farmers in giving loans and setting interest rates. Government subsidies (for holding land out of production) for not farming go mostly to the largest farms. Not only are small family farmers forced out but the giants are linked together through boards of directors and governmental commissions.

High food prices for us have meant high profits for the agribusiness giants. In addition, recent price jumps can be blamed on the fact that imbalance of our foreign exchange has encouraged the U.S. to export food, decreasing the supply in the U.S. markets. Also an increasingly popular tactic for large investors has been speculation in commodities markets where wheeling-and-dealing has worked to raise profits.

References

Books

Food First!, Frances Moore Lappe, Joseph Collins and Cary Fowler. (Houghton Mifflin Co., 1977; $7.95 (hard cover) OR Ballantine Books, $2.95 (soft cover)). We recommend this book as a resource on starvation in less developed countries. Write and ask to be put on the Institute for Food and Development Policy's mailing list (2588 Mission St., San Francisco, CA 94110)

An excellent cartoon version of *Food First!* appeared in the Sept. 1977 issue of The New Internationalist magazine (30c per issue for more than 25 copies). Write to New Internationalist, 62A High St., Wallingford, Oxford, 0X10 OEE, U.K.

Let Them Eat Promises; The Politics of Hunger in America, Nick Kotz, Doubleday Anchor, Garden City, NY, 1969. This book documents the American response and nonresponse to revelations of hunger in our own backyards.

Media

Hunger in America (54 min., B&W) Documentary on CBS TV in 1968, available as a movie from California Newsreel/Earthwork; Development Media Center, 630 Natoma St., San Francisco, CA 94103 (415-621-6196) Rental fee $50. This show appeared the same year as the book *Hunger: USA* which is now out of print. Both shocked the country with pictures of serious cases of malnutrition and people refusing to admit hunger in a "land of abundance". The documentary is still timely.

Food for Life (22 minutes), available for free showing from the New England Dairy Council, 1034 Commonwealth Avenue, Boston, MA 02215 (for MA, NH, and RI) or 28 Grand Street, Hartford, CT 06106 (Conn. only). The film deals with four malnourished teenagers: two Americans, one Asian, and one Latin American. It is shown periodically on educational T.V. during class time.

Resources

Oxfam-America Inc. — This nonprofit developmental aid organization has much of the best and up-to-date information on world hunger and food production. Their office is at 302 Columbus Avenue, Boston, MA.

Unit II Section 2
Yesterday and Today

Objectives:

1. Students will learn that the food we eat today and the way we obtain it has changed considerably within the past fifty years, not always for the better.
2. Students will realize these changes should lead to questions about both the health implications of a different diet and about why our food suppliers have changed the foods they sell to us.

Timetable: (1 to 2 class periods) If students leave the classroom to do interviews on their own then one class period should be allowed for discussion. It may be more enjoyable for the class as a whole and easier for students who are isolated from the elderly if the grandparents of one or two students could be invited into the classroom. In this case, allow one classroom period for the interview-visit with additional class time for follow-up discussion.

When you lead a class discussion of student findings you might want to introduce some facts about changing diets in non-Americans which have some fascinating implications.

1. While expensive (e.g. meat) processed, packaged, convenience-style food products (e.g. cake, formula) are only starting to make inroads into the typical diet of people in less developed countries, such foods are being used more by the urban elites of these countries who can afford the luxury. This transition has been accompanied by the dramatic increase among the urban elites of diseases once uncommon in the less developed countries: the cardiovascular diseases (diet-related) common in Western countries.

2. The Western-style eating pattern is admired by the poor people of the less developed countries as well. Coca cola and other similar soft drinks are popular in rural villages around the world despite their high price. Bottle feeding is being widely adopted around the world even through infant formula has proved to be much more expensive and hazardous nutritionally than breast feeding. (See Unit III Section 4's lesson "Bottle Babies" for more on this.)

3. A striking change in health and disease has occurred among groups which have emigrated to the United States and have adopted the American diet. The Japanese, for example, have traditionally eaten a diet high in roughage and low in meat. Japanese-American immigrants and their children eat food which is more processed and includes lots of meat and have shown dramatic increases in several diseases such as cancer of the colon.

4. The food industry, and even some academic nutritionists and government spokespeople, would have us believe that

our diet *improves* as it has become wonderously varied, thanks to the blessings of technology. Also they point out that new food products have been created to meet consumer demands. This is simply not so. Choices have been made for us and despite us. Explanations for why our eating patterns have changed come from a study of economics and politics. These should be stressed to your students and the lessons in Unit III should help you do this.

The fact of the matter is that the more processed a food is, the higher a price can be charged and the more profitable it is. As more is done to food after it leaves the farm in the way of processing, preserving, packaging, transporting, and advertising, then a lower percentage of the food dollar goes to the farmer and more goes to the various middlemen (sic); this is the farm-to-market spread. (See Unit II Section 5.) Many of our food demands have been manipulated by advertising (Unit III Section 1). Most of our food is no longer grown locally and even the farms are parts of huge agribusiness conglomerates (Unit III Section 2)

References

The Changing American Diet, Center for Science in the Public Interest, 1978; available for $2.50 from CSPI, 1755 S Street, NW, Washington DC 20009.

Dietary Goals for the U.S., report by the U.S. Senate Select Committee chaired by Senator McGovern, available from the U.S. Printing Office.

Resources

Project Outside/Inside is a curriculum development program in nutrition, health, and gardening funded by a Title IVc grant. Their address is 81 Highland Avenue, Somerville, MA 02143. (phone 617-666-5700 X 434) Their material is attractively designed and activity oriented.

1. ***Design for Health*** — focuses on physical fitness, self-image, weight control, and healthy diet. For junior or senior high school. $7 each ($5 for 15 or more copies); $7 for teacher's manual.

2. ***Food for the Health of It*** — To help senior high school students evaluate their eating habits and make changes in their own diets (eating less sugar, fat, and salt). This is excellent material for classes that want to go into diet-related diseases, nutrition, and the influences on eating habits more thoroughly than we do in this Unit. $5 each plus $5 for teacher's manual.

3. ***Rate Your Plate*** — 30 minute color video production using TV game show format. Available on 3/4 inch cassette for $55 or 1/2 inch reel-to-reel for $45 (rental of either $15).

4. ***Ladybugs and Lettuce Leaves*** — Gardening curriculum for elementary grades. $7 each ($5 for 15 or more copies); $5 for teacher's manual.

Newfield News/cpf

Unit II Section 3

Salty Blues

Objectives:

1. Students will learn the average requirements for sodium and if they ingest too much so that students may be motivated to change their salt habits.
2. Students will learn the health hazards of hypertension and other ill-effects of too much salt.
3. Students will learn how to find sodium on food labels and to inquire about salt in unlabeled foods.
4. Students will learn how to interpret blood pressure numbers and how to use a sphygmomanometer/stethoscope apparatus.
5. Students will understand the connection between hypertension and salt.

Timetable: 1-2 class periods with homework (label reading; talking to parents)

Materials: enough sphygmomanometer/stethoscope sets for class to do blood pressure determinations on each other or else arrangements with school nurse for her to come into classroom for this purpose.

Background information:

Table salt (sodium chloride) is about 40% sodium.

Is the craving for salt natural? It is hard to say because once a person is exposed to salt they crave more and the salt addiction begins to build on itself. Why did our ancestors consider salt precious? Salt (with vinegar) was used successfully to preserve meat and fish. It made tasteless or bad-tasting food palatable. Salt came to be viewed in mythology and religion as beneficial and in commercial trade as valuable as money.

Many people with hypertension are given medications such as **diuretics**. Diuretics rid the body of excess fluids and are mainly used to treat edema, which is fluid retention. They are powerful drugs, can stress the kidneys and endocrine system, and make your body lose not only sodium but vital potassium and other water-soluble nutrients. Prescription of such medications is of course a matter between doctor and patient and these drugs do save lives. The important idea to convey to your students is that a diet change (now) is better than relying on medication (later).

In a study at Brookhaven National Laboratory, Dr. Lewis K. Dahl measured the blood pressure of 1346 adults. He also had them rate themselves according to "salt food automatically before tasting", "usually salt food after tasting" and "rarely add salt to food". He classified 105 of the people as clearly hypertensive. One fell in the low salt intake group, 43 in the medium, and 61 in the high salt group.

Reference: "Shaking Out the Truth About Salt" *Nutrition Action* March 1978 pp. 3-7.

Unit II Section 4
The Big Killers: Sugar and Fat

Objectives: Students shall become aware that:

1. The overconsumption of sugar is a manipulation of the consumer by the food industry.
2. Sugar and fat contribute to a great extent to certain preventable diseases associated with the modern Western lifestyle.
3. Fat has more calories per gram than protein or carbohydrates.
4. Differences exist between types of fat with respect to degree of saturation and presence of cholesterol.
5. The risk factors for cardiovascular diseases and other diseases include family history, diet, and level of exercise.

Timetable: Three class periods with homework.

Materials:
"natural" and processed peanut butters for class tasting
sugar-food labels or access to supermarket
family histories of death and disease

How sweet it is!

On the graph, the temporary decreases in sugar consumption occurred during World War I and World War II, due to the rationing of sugar and the general decrease in the availability of food.

Answers to scavenger hunt: *Salt, dog food, and shredded wheat contain the least amounts of sugar - 1% (Dextrose is added to iodized salt to stabilize the iodine.) Ritz crackers 12%; Hamburger Helper 23%; Jell-o 82.6%; Shake 'n' Bake Bar-B-Q 50.9%; Apple Jacks 56%; Post Raisin Bran 11% (but three separate sugars are listed: sugar #3, corn syrup #5, honey #7).*

There are more than 100 sweet substances identified chemically as sugars. These include fructose (fruit sugar or levulose), dextrose (glucose - corn sugar or blood sugar), lactose (milk sugar), maltose (malt sugar). The word sugar is commonly used to refer to sucrose (from sugar cane or sugar beet).

Bring in sample foods to show students.

See *Consumer Reports* March 1978 for descriptions of kinds of sugars and for explanation of refining processes. We have used their percentage figures.

Calories are units of energy. If your calorie intake is in excess of your calorie output you will gain weight (usually in the form of fat cells or adipose tissue). One calorie (little c) is the amount of heat needed to raise the temperature of one gram of water 1°C. One food Calorie (big C) = 1000 calories or 1 kilocalorie.

Fat is fattening!

Answers to fattening foods checklist: all even number foods are more than 50% fat (over half of their calories are from fat).

Answers to potato calorie calculation: French fries are more fattening. Fat caused the greatest increase in calories. There are more fat calories in French fries because of frying (an example of food processing). The apparent change in carbohydrates is really due to water loss during preparation.

Baked potato:	French Fries:
12 Calories from protein	8 Calories from protein
84 Calories from carbohydrates	132 Calories from carbs
0 Calories from fat	108 Calories from fat
96 total Calories	248 total Calories

Note: baked potatoes can be made more fattening by the addition of sour cream or melted butter.

Background for peanut butter

Different types of fats affect the body in different ways. Fats are saturated, polyunsaturated, or monounsaturated.

	saturated	polyunsat.	monounsat.
source	animal	plant	plant
state at room temp.	solid	liquid (oil)	thick liquid
spaces for hydrogen atoms around carbon backbone	filled	unfilled	one-position open
effect on blood cholesterol	increases	decreases	none

There are two exceptions to the general rule that vegetable oils are unsaturated; coconut and palm oils are highly saturated (and will cause an increase in blood cholesterol levels). Food manufacturers like MacDonald's and Proctor and Gamble, the company which makes Crisco, use these oils because they are cheaper. They advertise by saying they use vegetable oil. This type of advertising is very misleading and may be prohibited in new labeling regulations.

The food industry can chemically change polyunsaturated oils from liquids to the solid state so they can be used in foods such as margarine or nonseparating peanut butter. This is called hydrogenation or hardening. When this happens, the polyunsaturated fat has lost its ability to decrease blood cholesterol levels.

Who is Mr. Cholesterol?

Many misconceptions about cholesterol arise from conflicting medical reports and advertisements by food manufacturers. Most recent studies suggest that blood cholesterol has been over-emphasized as a risk factor in cardiovascular disease. The following explanations of the true/false questions should help you clarify the issue.

1. **True.** Cholesterol is manufactured by all animals. Plants may be high in saturated fats which increase blood cholesterol levels, but no plants have cholesterol.
2. **True.** People with very high cholesterol diets can have low cholesterol blood levels if they exercise a great deal (marathon runners, for example).
3. **True.** Cholesterol is the precursor of all our hormones and

helps build the membranes lining nerve cells. Even if we consumed no dietary cholesterol, our blood would have cholesterol. It is manufactured in the intestines and liver.

4. **False.** Some people can eat no cholesterol and still have high blood levels. Others can eat a great deal of cholesterol and have very low levels. There is great individual variation in reaction to dietary cholesterol.

5. **False.** Blood cholesterol is a risk factor. People with higher blood cholesterol levels are more likely to develop heart disease. This is not always true.

Answers to foods high in cholesterol: eggs, butter, cheese, beef, ice cream, whole milk.

If it doesn't kill you, you'll need false teeth

Students can estimate if they are overweight by referring to standard height and weight charts and seeing if they are 10% above the range. **Obesity** results if a person is 30% above the normal range. Be sensitive to students with weight problems. There are great pressures in modern society to be slim and even skinny, which is considered by some to be sexy and attractive. You may want to discuss the popularity of fad weight-loss diets with your students. They are no substitute for basic and permanent changes in eating habits. Fad diets tend to be only temporary and often unhealthy. Also be aware of the possibility of **anorexia nervosa**, the self-starvation found most usually among teenage girls. It is a serious form of undernutrition.

Some people are believed to have a tendency to increase their blood cholesterol from high consumption of sugar. For diabetics, high consumption of sugar presents a specific hazard. Everyone should use sugar moderately. Encourage discussion about ways to reduce the number of calories by changing diets. Students with a family history of heart diseases should be encouraged to evaluate their diets.

Since we are all so accustomed to the taste of sugar, it is unrealistic to expect anyone not suffering from sugar-related problems to completely give up sugar. Try being lighter with the sugar spoon; try to get used to adding half. Sugar substitutes are not the answer either — they have been shown to cause cancer in test animals and should be avoided.

And what about the dentist who gives a lollipop to a well-behaved child. How did sugar become a reward for being quiet when dental cavities are drilled and filled?

References: *Nutriscore* p. 139, pp. 57-59
Dietary Goals pp. 28-34

Cardiovascular Disease

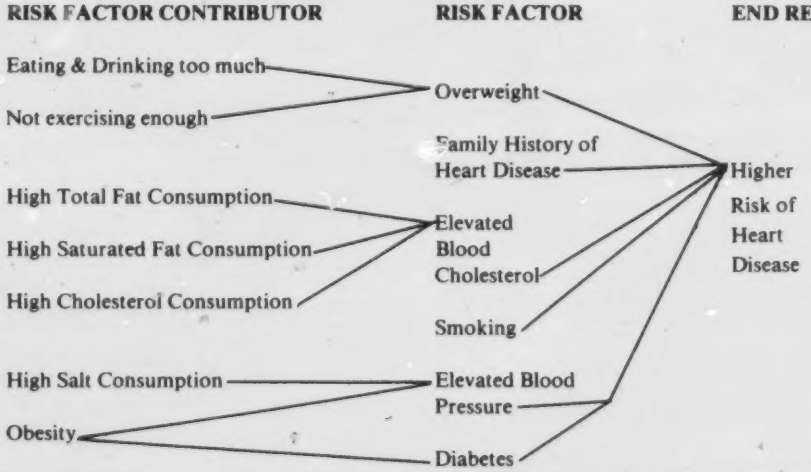
Cardiovascular disease (CVD) is any disease associated with the flow of blood through the circulatory system including the heart and brain. CVD is the leading cause of death in the U.S. and if you consider the disability from heart attacks, strokes, and hypertension, the effects of CVD are even greater.

It is important for your students to recognize factors in their environment which increase the risk of developing CVD and to develop life style changes to reduce that risk. The following is an excerpt on risk factors taken from the second edition of the Dietary Goals which you might want to reproduce entirely or for discussion with the students.

> "In general, "risk factors" refers to specific characteristics — age, lifestyle, diet, income, habits such as smoking or excessive use of alcohol, or even where poeple live or work — that are associated with a higher than average incidence of a specific health problem. If it is determined that one group of people who have something in common also have a higher incidence of a certain disease, health researchers begin to study the possibility that the common factor among these people may either cause, or help cause, the disease.
>
> Risk factors are warning flags. They suggest that, if a characteristic describes a person, the chances are greater that he or she may now or in the future have the same health problem of the other people who have the same characteristic.
>
> However, the existence of risk factors among a

Some Risk Factors Associated with Cardiovascular Disease (CVD)

The following diagram illustrates the interrelationship of some risk factors associated with heart disease.



group of people can not tell us about the specific fate of any one person within that group. Risk factors can only tell us the probability of an event occuring. As a result, altering a risk factor changes the probability of an event occuring but does not guarantee for a specific individual that an event will or will not occur to him or her.

Finally, on the one hand, there are some risk factors that a person has no control over — age, sex, and genetics or diseases that are common in their family. On the other hand are those controllable risk factors such as smoking, exercising, abusing alcoholic beverages, regularly brushing one's teeth, maintaining a reasonable pattern of work and rest, and, of course, selecting the most appropriate diet "

Unit II Section 5
Food From a Factory

Objectives:

1. Students will learn why foods are processed and why chemical additives are added.
2. Students will be able to define and use the words: processing and preservatives.
3. Students should gain an appreciation of the effect of processing on prices and profits through practice at calculating the price per pound.

Timetable: One class period.

Which would you rather eat?

Answers: A = dog food, Mighty Dog by Carnation
Answers: B = Cool Whip

Background on Food from a Factory and Not from a Farm

For space saving we have condensed a lot of information into a single chart "Examples of Food Processing". Your students may tend to avoid reading charts or figures unless done together in class or gently pressured to do it themselves. We urge you not to skip over the table since it provides much of the vocabulary necessary for doing the label reading activities in Unit II Section 6.

What happened to the potato?

Materials needed: Pringles potato chips

Calculations for price per pound:

$$\text{price per pound} = \frac{\text{price per package X 16}}{\text{number of ounces in package}}$$

	answer
fresh potatoes	$0.13 per lb
fresh potato, baking	0.24
sliced canned potatoes	0.29
frozen French fries	0.55
frozen potato puffs	0.55
instant mashed potatoes	0.77
potato sticks	1.99
potato chips	1.90
potato chips in snack packs	3.40
au gratin potatoes	2.36
hamburger helper	1.99
Munchos	2.53
Pringles	2.12

Our table comparing prices of various potato products has been borrowed from Jim Hightower's *Eat Your Heart Out: How Food Profiteers Victimize the Consumer*, Vintage Books 1976, $1.95 paperback. The prices were updated July 24, 1979 in a supermarket in Stoneham, MA.

The most intensively processed foods are also the most over-packaged, most heavily advertised and most profitable. Processing is the most rapidly growing segment of the food industry. (Reference: Daniel Zwerdling, "The Food Monsters", *The Progressive* March 1980, pp. 16-27)

Besides the higher prices, processed potatoes are less nutritious. Regular potato chips are 40% fat. The original potato is essentially fat-free. Chips have 2½ times as many calories because of the added fat. Most of the Vitamin C which is located just under the skin of a whole potato is lost in the high-temperature frying of the chips. (Reference: *Nutrition Action* magazine, June 1977)

Unit II Section 6
What *Are* they Putting in my Food?

Objectives:

1. Students will be able to define and use the following words: GRAS list, FDA, USDA, toxic, and carcinogen.
2. Students will gain experience in reading and interpreting ingredient lists on labels.
3. Students will learn about the federal regulatory process including the Delaney Clause, and how well it does or does not work.

Timetable: one class period (with homework reading). To *follow* Unit II Section 5, "Food From a Factory"

Materials: food packages and labels, copies of *Eater's Digest*

You can divide the class up and have some bring in cans, others boxes, others jars, etc. Students can also peel off labels if this is easier.

Suggestion: One of our teacher-authors has saved up a carton full of labels and empty packages scrounged from the trash or pantries of friendly junk-food junkies to use for her classes. Sometimes you may have to buy purposely for the collection. Some interesting labels we would recommend for class use: pre-sweetened cereals such as Fruity-Freakies or Cocoa Pebbles; or relatively nonsweet cereals such as Rice Krispies; Coca Cola; Lipton's onion soup mix or Nestle Souptime; vegetables frozen in butter sauce; Stove Top stuffing; Cool Whip; salad dressings such as Wishbone; barbecue-flavored or sour cream-flavored potato chips; bread; marshmallows, any toothpaste (the label is on outer box).

Buy or borrow as many copies as you can of *Eater's Digest*, Michael Jacobson, Anchor Books, 1976, $2.50 paperback. His alphabetical listing of food additives, their purpose in foods, and what is known about their safety is invaluable for this class activity. Jacobson's book is the fairest and most thorough in its treatment; he is intensely critical when appropriate but will admit that certain additives are safe and reasonable.

Background on testing for carcinogenicity:

Misconceptions are widespread among the general public

as to the validity of animal tests for carcinogenicity. Your students may likely repeat what they have heard: "You must drink hundreds of cans of diet soda a day to get cancer from the saccharin." or "Even water is bad for you if you have too much of it." These statements are untrue or at best distorted.

First, cancer is *not* one of the effects which occurs only at high doses but also does occur at low doses. Second, high dose studies with 25-50 rats or mice is the only economically affordable alternative to low dose studies with thousands of rats or mice, if you intend to be able to detect cancers at all. Third, many chemicals which are carcinogenic in animals have already been shown to be carcinogenic in humans. Fourth, it is very possible that carcinogenicity is both cumulative and additive and unlike rats in a controlled study, humans are exposed to several different carcinogens every day. Fifth, only a very few chemicals out of the many chemicals tested prove to be carcinogenic.

Respected scientists value the results of the animal studies. Try to develop in your students the ability to be critical of the motives of the food industry who are authors of some of the most distorted statements.

Reference - *Eating May Be Hazardous to Your Health*, by Jacqueline Verrett and Jean Carper, Anchor Books 1975, $2.95 (paperback). J. Verrett was a research scientist for the FDA for over 15 years and her expose of FDA decision making includes some dynamite casehistoriesof nonprotection.

Answers for Activity II Synthetic Foods

A. lemon cream pie
B. chocolate pudding
C. Tang Note: The following declaration appears on the Tang label: "Tang is not juice, juice product, or soft drink mix. It is a brand of instant breakfast drink from General Foods."

Unit III Section 1
Tastes Like Love: TV ads

Objectives:

1. Students will be able to recognize the most heavily advertised food products on T.V.
2. Students will examine the role TV advertising plays in their food choices.

Timetable: One class period (plus weekend "homework" time for TV viewing if appropriate). You may want to teach this section in conjunction with the activity on name-brand product differentiation in Unit III Section 2.

Background information:

Whether you consider advertising brainwashing propoganda or annoying drivel, the corporate world knows that advertising is essential to building mass loyalty to their brandname products. Conglomerates push for increasing their share of the dollars we spend at the supermarket both by taking over pre-existing companies and by buying our loyalty through advertising. In fact, mergers often come hand-in-hand with TV blitzes. Advertising is expensive and its cost is passed on in higher prices for brandname products but consumers are convinced to buy the more expensive products instead of cheaper, less advertised ones. Advertising is integral to our acceptance of the most profitable items on the supermarket shelf, those that are most processed and over packaged.

On the average, six cents of every dollar spent on processed foods goes to pay for TV ad time and other promotions. For some hot-selling brands the figure is even higher: buyers of Kellogg's Country Morning pay 35 cents of every dollar for ads to pursuade them to buy. Together, Proctor and Gamble and General Foods spent $80 million for advertising coffee in 1979 when P & G bought out Folgers coffee and the two conglomerates battled for who would be number one: Folgers or Maxwell House. (The costs were passed on to other products sold by these conglomerates.)

Decisions by corporations as to how to direct their advertising comes from the most sophisticated psychological and sociological research done today. Advertisers know our motivations and how best to appeal to us.

Source: "The Food Monsters" by Daniel Zwerdling, in The Progressive, *March 1980, pp 16-27.*

References

1. List of most-advertised foods from *Edible TV: a Report on Your Children and Food Commercials* by the Senate Select Committee on Nutrition and Human Needs, Sept. 1977 (p. 63).
2. Sugar and fat in the average diet from *The Changing American Diet*, L. Brewster and M. Jacobsen, Center for Science in the Public Interest (1775 S Street, NW, Washington DC 20009), 1978, $2.50. Full of fascinating statistics and graphs illustrating changes in food consumption.

Resources

A.C.T., (Action for Children's Television), 46 Austin Street, Newton MA 02160, phone 617-527-7870. Started more than a decade ago by a small group of parents, A.C.T. has been outspoken especially against the advertising of sugared cereals to small children and had managed to get a majority of the commissioners of the F.T.C. (Federal Trade Commission) to seriously consider a ban on such ads. It seems, however, that heavy lobbying by the food industry in Congress will negate A.C.T.'s success and irreparably weaken the F.T.C.

Unit III Section 2
Survival of the Fattest

Objectives:

1. Students will learn about the economic reality of multinational conglomerates as illustrated by Gulf and Western.
2. Students will learn that supermarket shelves are a good source of information about the size of conglomerates and their subsidiaries.
3. Students will learn about the politics of sugar production.

Timetable: Two-three class periods plus out-of-class time for "field trip" to supermarket.

Background information: Gulf and Western

Most of our information came from *Food Monitor* September 1977 issue; *Hungry for Profits*, book by Robert J. Ledoger, IDOC (International Documentation), New York

1975; and Larry Simon of Oxfam/America's Boston office. Gulf and Western's annual report is an excellent reference. We encourage you to send away for annual reports of Pepsi-Co, Coca Cola, Borden's, etc. or have students do so as a project. You may get best results by claiming to have an interest in stock investment.

The slide-tape show *Guess Who's Coming to Breakfast?* tells the story of the expansion of Gulf and Western in the Dominican Republic after looking at the corporate sources of all the foods on the breakfast table. This is an excellent audio-visual and *should be shown as part of this section* if at all possible. It was produced by Patrick Hughes, Packard Manse Media Project, Box 450, Stoughton MA 02072, (617-344-9634) and is available from them for purchase ($53) or rental ($15 a week). It is also available as a filmstrip with cassette for $24 purchase.

The Dominican Republic's government is in transition at the date of this writing. President Balaguer was voted out in 1978 and it is not obvious what the new government (still friendly with the U.S.) will do with respect to the domination by Gulf and Western. Keep an eye on the news.

If you are located near the Connecticut Valley you might want to introduce to your classes' discussions the Gulf and Western "Tobacco Triangle". The triangle involves 1) trade preferences for the Dominican Republic in world markets 2) migrant labor from Puerto Rico brought to the D.R. and to the Connecticut Valley 3) tobacco and cigar operations in the Connecticut Valley (G & W owns Consolidated Cigar).

Note: A newer term for multinational is transnational. The two seem to be used interchangeably in magazines, newspapers, and books.

Activity 1 — Whose grandmother made this jar of pickles?

Answers to which conglomerates own which food products:

	answers
Dannon Yogurt	Beatrice Foods
Tropicana orange juice	"
Clark candy bars	"
Sunbeam bread	"
La Choy Chinese food	"
Swiss Miss cocoa mix	"
Schweppes	"
Royal Crown cola	"
Canada Dry	"
Orville Redenbacher Gourmet Popcorn	Hunt-Wesson
Hostess Twinkies	I.T.T.
Morton Frozen pies	"
Wonder Bread	"
Fresh Horizons Bread	"
Sara Lee frozen cakes	Consolidated Foods Corp.
Franco-American canned spaghetti	Campbell
V-8	"
Swanson Frozen Foods	"
Star-Kist tuna	H.J. Heinz
Ore-Ida frozen potatoes (F.F.)	"
Dromedary dates	Nabisco
Campfire marshmallows	Bordens
ReaLemon reconstituted lemon juice	"
Sacramento tomato juice	"
Wise potato chips	"
Drake's cakes and snacks	"
Cracker Jacks	"
Wyler drink mixes	"
Reeses peanut butter candy cups	Hershey
Snow's seafood products	Bordens
Kava Instant coffee	"
Sanka, Maxwell House, Postum	General Foods
Minute rice and Minute tapioca	"
Post grape-nuts	"
Tang	"
Jell-O	"
Snake 'n Bake	"
Gaines Pet Foods	"
Good Seasons Salad Dressing	"
Log Cabin Syrup	"
Country Time lemonade	"
Kool-Aid	"
Bird's Eye	"
Minute Maid orange juice	Coca Cola
Hi-C	"
Pringles reconstituted chips	Proctor and Gamble
Folger coffee	"
Crisco oil	"
Duncan Hines cake mixes	"
Jif peanut butter	"
Crest toothpaste	"
Cheer, Duz, Tide, Ivory Snow, Dash, Bold, and Downy	"
Luv and Pampers	"
Planters peanuts	Standard Brands
Royal instant pudding	"
Sun Maid raisins	"
Fleischmann's margarine	"
Tender Leaf tea	"
Baby Ruth candy	"
Aunt Jemima pancake mix and frozen waffles	Quaker Oats
Durkee spices and seasonings	SCM (Smith Corona typewriters)
Coffee-mate non-dairy creamer	Carnations
Mazola Oil	Best Foods
Betty Crocker	General Mills
Skippy peanut butter	CPC Foods
Peter Pan	Swifts
Chun King Chinese foods	RJR (Reynolds aluminum)
Hawaiian Punch	"
Del Monte	"

In discussion after this activity you may have to define **ethnic names** for your students. You also may want to define the word **deceptive**.

An important point for you to emphasize in class discussion is whether **free enterprise** is fact or fiction. Your students may have been taught that our **capitalist** system depends on free enterprise where companies compete in the market for the better share of consumer demand by offering lower prices and/or better quality. Food industries are dominated by a few giants whose monopoly-style control allows them to set

higher prices. Government economists estimate that the nation's food manufacturers charge $15 billion more then if they were not so tightly controlled. Competing smaller firms are being bought out constantly and it is almost impossible for a new firm to enter the market. Just a look at the supposedly competing washing detergents which are all made by Proctor and Gamble can help dispel the fiction of competition.

Activity 2 — Good to the last drop

Besides having your students report back to class their discoveries in the supermarket, it will be fun and stimulating to bring into class or have students bring into class food products which are both nationally advertised brand names as well as cheaper brands. Have students actually taste-compare blindfolded as is done in the commercials which claim to show the poor quality of competing brand X. There may be disagreement among the class as to which taste better.

Activity 2 could be coordinated with Unit III Section 1 "Tastes Like Love" on TV advertising. You may want to point out to your students that the most easily differentiated foods are the most processed and the most heavily advertised, as well as the most profitable.

References

An excellent up-to-date article on corporate take-overs, national advertising battles between conglomerates, and the increase in differentiated processed packaged foods is "The Food Monsters: How they gobble up each other — and us" by Daniel Zwerdling in the March 1980 *Progressive* pp 16-27.

Resources

Hamburger USA: A closer look at America's Food System is a 28 minute slide-tape show. It "dissects" a hamburger in terms of the production and marketing of the meat, bun, lettuce and tomato. It is fast-paced and colorful. Available from American Friends Service Committee, 2161 Massachusetts Avenue, Cambridge, MA 02140 (phone 617-661-6130) or 2160 Lake St., San Francisco, CA 94121 (phone 415-752-7766). Rental: $10 individuals; $15 schools and institutions.

Unit III Section 3
Harvest of Shame

Objectives:

1. Students will learn that poor migrant laborers are brought into this country to harvest our crops.
2. Students will gain an appreciation of the migrant worker's situation and be able to put themselves into his/her shoes.
3. Students will learn where the food we eat comes from.
4. Students will become aware that food corporations such as Del Monte have reached into developing countries such as Mexico with results detrimental to the Mexican people.
5. Students will realize the several consequences to the people of Mexico of supplying our food.

Timetable: Section 3 is in two separate parts which can be done together or independently.

For Part A: Cutting cane in Florida, allow one class period to read the story of Roberto (or possibly assign reading for homework) and to do the role play.

For Part B: "Canned imperialism," assign reading to be followed by one class period to discuss the reading.

Background information:

We have found in our own classes that most urban and suburban students have almost no idea of where their food came from before it appeared on supermarket shelves. Furthermore their image of a farm dates from elementary school materials about friendly Farmer Jones on his tractor or milking his cow Bessie. In fact most adults probably take for granted the constant availability of foods and do not question the costs in human suffering which growing that food may have meant. Even if adults have become somewhat aware of Cesar Chavez and his United Farm Workers in the lettuce fields and vineyards of California from media coverage of boycotts and strikes, these are no longer current events for today's students.

It is important to stress in class discussion of both parts of this Section that the problem is not just meanness by the Florida landowner and that Del Monte is not just an exception to our friendly relations with our neighbors south of the border.

Role play

Since the situation represented in the story is one of conflict between two sides, a role play is the best way for students to understand the issues. In role playing an individual takes the part of another and tries to act and respond as that person would. Each individual acts and responds, upon role-taking, as if he/she were really in that situation. The success of role playing depends partly on whether your students have had previous experience or if you have a few creative "hams."

Give a team of students assigned the role of the migrant workers a card with the description of their role as found below, so they can plan their strategy as a small group before acting it out. Similarly the team of students assigned to represent the growers should discuss their position as represented on a card (see instruction for role below) before confronting the worker group.

You may have to do some coaching and encouraging and even participate yourself to get the students going. Of course your role as teacher should also be to lead a discussion afterwards of what happened in the role play. The discussion might focus on such questions as the following: What value issues have been raised? What attitudes have been expressed by the behavior of the participants? Did anything happen that couldn't *really* happen? What were the feelings of the participants at certain points (angry/happy/sad)? How do you think the situation would develop from this point?

Although role plays can last up to an hour or even longer, generally brief role plays of about ten minutes or so are more effective. Because role plays do not necessarily build to a climax and conclusion, you should cut the action at the earliest moment you think that there has been enough data produced for analysis and discussion.

Instruction card for migrant worker role

You are worried about earning and saving enough money to support families back home in Jamaica and feel isolated in a foreign country so unlike the Caribbean. You are unsure of American customs, especially since you live and work in one place for only a few months, then off to a new location. You are also worried about possible injury or ill health resulting from working conditions.

While you are used to doing passively whatever work is given to you, you are angry and desperate enough to be willing to confront the growers. You may not be accustomed to unified action but are trying. You have made yourself knowledgeable of all the rules in the contract (see reading) and how your actual living and working conditions are very different and you are feeling cheated. You are aware that the sugar cane must be cut now and not a month later.

Instruction card for Florida sugar grower role

You feel secure in that all sugar growers are long-time friends and business associates. You are aware of the desperate poverty of the migrant workers and their need for whatever they can earn. You are willing to make threats of deportation and confident of support from the police and courts who are all-white as you are. You are aware that your contract (see reading) is with the Jamaican government and therefore the workers may be powerless legally.

You are used to the passive cooperation of Jamaican workers and are somewhat surprised at the confrontation. You are anxious to get the sugar cane harvested promptly and cheaply.

Background information: Canned imperialism

The discussion should be directed toward deciding on the appropriate possible action by the various parties involved. What should the Mexican people do or what can they do? Whose responsibility is it to change the situation? Del Monte? the Mexican or U.S. governments? the U.N.? American consumers?

If you wish to expand on the discussion of "dumping" the dangerous pesticides we ban in our own country, an excellent resource is *Mother Jones* Nov. 1979 "The Boomerang Crime" p. 40.

The word "imperialism" is often used without being defined. Imperialism is used (by modern-day Marxists, for example) to describe the latest stages of world capitalism. This may be confusing to many people who remember the historical use of the word to describe British and French colonialism in Africa and Asia.

We are using the word imperialism to mean the political dominance and economic exploitation of Third World or developing countries by the large and more developed world powers such as the U.S. and the U.S.S.R. Imperialism did not end when Great Britain and France gave independence to their former colonies. Today imperialism includes intervention in internal politics to support local governments favorable to the imperialist interests, military aid, dominance in regional treaty alliances, control of world finance and credit institutions, aggressive expansion of markets by transnational corporations, as well as exploitation of natural resources such as farm lands or mines. Long before Vietnam, U.S. imperialism has taken a violent form, such as sending in the Marines into Nicaragua in 1909-1926. The word can be used just as correctly to include the "peaceful" intrusion of Del Monte Corporation into Mexico as described in this lesson.

References

Much of the materials for this Section has come from the *NACLA Report on the Americas*, a bimonthly magazine published by the North American Congress on Latin America (a nonprofit research organization). We consider NACLA the best source of information on Latin America and U.S. imperialism — they are thorough, up-to-date, hard-hitting, and provide information available nowhere else. Subscriptions are $13 per year ($24 for two years, $34 for three), and back issues can be bought. Their address is 151 West 19th Street, New York, NY 10011.

Resources

A Day Without Sunshine. 60 minutes long, in color, produced by Florida P.B.S. about farmworkers in 1976, rental $70 from California Newsreel/Earthwork, Development Media Center, 630 Natoma St., San Francisco CA 94103 (415-621-6196).

Unit III Section 4
Bottle or Breast?

Objectives:

1. Students will learn to compare and contrast the two means of infant feeding.
2. Students will learn how and why mothers choose one form of feeding over the other.
3. Students will learn about health hazards of bottle feeding in developing countries.

Timetable: Two class periods

Suggestion for introducing this section

Many teenagers show acute embarrassment over any mention of breasts and it may be impossible in many high

school classrooms to discuss infant feeding if you try to ignore this. If you feel it is appropriate for your students, you may want to preface this activity with a discussion of the symbolism of breasts in our culture, the slang words and the exploitation of sex by the media. Students should be able to distinguish between the sexual and physiological connotations. You must judge the maturity of your own students.

Resources

If at all possible show your class one of two excellent movies. They are visual and graphic and will stimulate discussion of Third World issues more easily than having your class read the information.

The movie *Bottle Babies* (produced by Peter Krieg, 1975, Tricontinental Film Center) shows Third World mothers who have made the choice to feed their babies by the bottle, why they decided to abandon breast feeding, how the poverty of their lives makes the bottle dangerous and what the consequences of malnutrition may mean to their babies. The movie especially focuses on the Switzerland-based multinational corporation Nestle, a major exporter of infant formula and the target of a boycott in the U.S. since the fall of 1977.

In July 1978 a special *CBS Reports* with Bill Moyers was televised on infant formula abuse and the videotape of this, called *Into the Mouth of Babes*, is available. It is a hardhitting journalistic approach, less emotional than *Bottle Babies* and very effective. Moyers focuses on the Dominican Republic and Jamaica as well as on American companies: American Home Products (makers of Wyeth's SMA) and Bristol Myers (makers of Mead-Johnson's Infamil and Similac). We strongly recommend this to you.

To find out about renting/borrowing the movies and for more information on the Nestle boycott, contact INFACT — the Infant Formula Action Coalition:

National INFACT (for a list of churches and community action groups near you who would have these movies)
Third World Institute
1701 University Avenue, SE
Minneapolis, MN 55414

Boston INFACT
First Church Congregational
11 Garden Street
Cambridge, MA 02138
(617) 491-5314

Interfaith Center for Corporate Responsibility
475 Riverside Drive
New York, NY 10027

Northern California INFACT
1499 Potrero
San Francisco, CA 94110

Tricontinental Films (for purchase of the Krieg movie)
333 Avenue of the Americas
New York, NY 10014
or Box 4430
Berkeley, CA 94704

Classroom visitors

Have the mother *and father* of an infant 6 months or older come into class to share their experience with feeding their baby. How did they make choices? Did they try breastfeeding and then switch to bottle? How involved is the father in the care of the infant? This approach may be easier than trying to get students to anticipate becoming parents themselves (even though this may be happening to some very soon).

Additional facts

1) PBB's (polybrominated biphenyls - found contaminating animal feed in Michigan) and DDT (insecticide) residues have been found in human milk. This depends somewhat on the mother's diet. These chemicals are not degraded and accumulate in fatty tissue (such as lactating breasts). On the other hand, DES (synthetic estrogen used to fatten cattle before slaughter) and antibiotic residues (routinely included in animal feed) have been found in cow's milk. This brings ecological questions into what primarily is a health issue.

2) If a nursing mother wants to leave the child with somebody else she may take out her own milk using a breast pump or by hand and putting it in a bottle. It keeps for 24 hours in the refrigerator and three weeks in the freezer. This alternative can be introduced into discussion of Part A in a class which would not be put off by the idea of a breast pump.

References

1. Patrice and Derrick Jellife, "Breast is Best", *New England Journal of Medicine* 297 #17, October 27, 1977.
2. Joanna Dwyer, "The Decline of Breast Feeding: Sales, Sloth, Society", *UNICEF News*, January 1979.
3. World Health Organization

Unit IV Section 1
Introduction to Change

Objectives: Students will learn:

1. Change *is* possible. Some changes are realistically more possible than others.
2. Students themselves are capable of making change happen.
3. Making changes happen requires identifying obstacles and assessing the strength of the obstacles. It is helpful also to decide why the obstacles exist.
4. Students should be able to make a step-by-step plan for making change happen, along with alternatives.

Timetable: One to two class periods; can be done without any outside-of-class activity. Class interest may suggest follow-up projects.

Note: Unit IV must *follow* activities and lessons from the first three Units.

From theory to practice: teaching for social change

One purpose of this curriculum guide has been to demonstrate the interdependence of food, nutrition and politics. We have only scratched the surface.

After the lesson plans in the first three units are done, the question remains, *what will your students do with this information?* Being bombarded with examples of what's wrong can turn off the most optimistic of us. High-school students, existing in the transitional period from child to adult, may be particularly resistant to cope with negative information. So, your students may barrage you with cynical remarks like:

"So, what do you want me to do, cure cancer?"

"We're all going to die anyway. Aren't we?"

"Why should I care about people in India? Do they care about me?"

It's difficult for teachers to assist students in the processing of disturbing information in a meaningful way and they should be prepared for this. After all, students are given a daily dosage of ideology on TV and in stores; they are influenced by their peers and adults, etc. It is no wonder that most people believe that "you can't fight Ronald McDonald."

Cynicism and complacency have been taken as a given for too long! In this chapter we intend to discuss how people can and do "fight Ronald McDonald" and how they can make themselves agents of change. To achieve this end it may first be important to identify the battle lines. Many of your students are probably politically naive (in spite of any material you've previously discussed) and they may not be capable of differentiating between the politically strong and the politically weak (e.g., between less developed Third World countries and technologically advanced Western countries). You therefore might wish to set up an example (or two) in class which clearly differentiates sources of power at play. Use the following to complement Activity 1 involving changes in school students would like to see happen.

Discussion questions:

You have seen in Unit III Section 1 that TV advertising of sugared food products is being challenged at this time. To introduce discussion, after Activity 1 ask your class:

(1) Who are the participants in the sugared cereal controversy? (e.g., parent groups/consumer groups vs. food industry/advertising industry/TV industry.

(2) Who stands to *lose* if advertising is ended? (Name at least three industries which will lose money)

(3) Who stands to *gain* if advertising is ended? (In what ways might they gain? — less disease, less money wasted on non-nutritious food)

You may want to set up role play.

In analyzing this type of example, it is important for you to be aware of the social/historical antecedents to the situation. Why, for example, are sugared cereals an issue at this point in history but not 25 years ago? This is largely due to the growth of the food industry (in general) and the nature of TV advertising regulation, much of which is a case of 'the fox guarding the chicken coop'. That is, FTC* and FCC (as well as FDA) regulators often speak on behalf of the industries they are supposed to be monitoring. This might not be surprising since many can expect jobs** with the industries they monitor either before or after their tenure at the regulatory agency (this is called the "revolving door"). Moreover in the case of funds, industry budgets allow them to purchase "the best scientists money can buy." It is not uncommon for food corporations to fund buildings in nutrition departments or agricultural schools in return for statements of approval for industry positions from distinguished scientists. In guiding class discussions these are some of the concerns that you might address. These concerns are crucial because they lead to the question of what social change is and why it occurs.

*FTC = Federal Trade Commission, responsible for regulating interstate commerce; FCC = Federal Communications Commission, responsible for regulating radio and TV broadcasting; FDA = Food and Drug Administration, responsible for regulating food safety.

**Jaqueline Verrett and Jean Carper, *Eating May Be Hazardous to Your Health*, Anchor Books 1975 ($2.95 paperback)

Background information:

You as a teacher are probably already aware that your students' perception of social change is undeveloped compared with your own. In light of this it is important to give constant encouragement to your students that change *is* in fact possible. Try to encourage optimism whenever necessary.

The two student exercises in this section should serve to bring out some of your students' perception of social change and some methods they might employ to facilitate change. If the activity on changing food and nutrition follows the activity on what can be changed at school, it can hopefully build on what immediate changes (in the school) are possible. The exercises are designed to be done in groups of four-eight students who will report back to the whole class. Decisions within each group should be made by consensus or majority vote. Try to monitor the groups to make sure that the students are willing to take chances in their guesses and opinions and to ensure that they know there is not one correct or incorrect answer. It is more the *process* than the product which should be concentrated on. However, we encourage you to follow-up with your students such that they take the exercises to their logical conclusions.

Resources

Rules for Radicals, Saul Alinsky, Random House, N.Y. 1972 ($1.95)

Four levels of change

Grasping the idea of social change may be a difficult task for most of your students. For some of your students making a personal change (e.g., becoming vegetarian) may really strike home. For others joining a national movement (e.g., a boycott) may be more manageable as well as more meaningful. Our intention here is to provide alternatives for you that your class may find useful.

For best presentation of the information in the rest of this unit we have considered social change as operating on four separate (though not unrelated) levels:

Personal/Individual
Community
National Policy
Global

Unit IV Section 2
Choosing What You Chew

Objectives: Students will learn:

1. Possibilities exist for change on the personal level such as changing what you yourself choose to eat.
2. Eating less meat (lower on the food chain) is an alternative eating style some people are choosing today.
3. Meat protein is ecologically less efficient than vegetable protein.
4. Vegetarians can eat complete protein by combining complementary protein (see *Diet for a Small Planet*).
5. Students will try "alternative foods."

Timetable: One class period.

Materials: Food supplies and minimal preparation/cooking facilities for vegetarian recipes (see student material).

Kinds of personal change

Personal change, as we speak of it, can reflect a change in personal political consciousness. The focus of personal change is what "I" as an individual can do to adjust "my" lifestyle. It doesn't necessarily have to occur in isolation but there may not be a group around to provide help or support. Many people who decide to make personal dietary changes are not social activists. They change their dietary habits for health reasons or for reasons of simple taste and preference. But any change from what most people do usually means freeing oneself from media manipulation and corporate control and can have political ramifications.

Dietary changes can take many different directions. For example, reducing intake of highly processed and pre-packaged foods might be one direction to take. Reducing sugar consumption in spite of the advertising pushes of the food industry might be another. The prevalence of "junk" foods in the American diet make it an excellent target for diet change. "Junk" foods rather than main meals are more under the direct control of student consumers.

A common example of personal dietary change is the decision to reduce meat intake and become a partial vegetarian. You may recall for students friends or students who have done this. In many cases the rationale is different. Some may have been rebelling against parental wishes. Others may have done it because of peer pressure. In fact, there are some very important political and economic reasons besides personal preference for turning to vegetarianism.

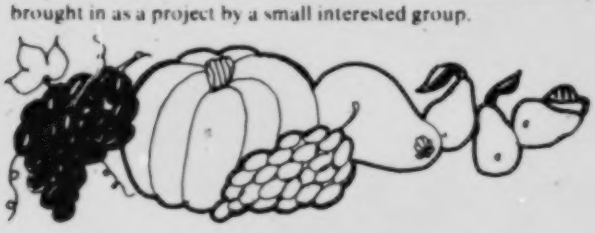
After students have read the information given in this lesson, discuss the different reasons for becoming a vegetarian. How can the decision be a political act or an effort at social change?

Vegetarianism is not the be-all-and-end-all of personal change. Many people are still inveterate meat eaters but have been exposed to new foods and new ways of cooking to increase nutritional value. As a result the meat-eaters can and do prepare and enjoy vegetarian meals. Since some students are already experimenting with vegetarianism and most students have some curiosity about those strange people who eat nuts and seeds, we feel it is important for them to learn the hows and whys and enjoy the results.

Food preparation activity

An introduction to vegetarianism should not be merely a dry academic exercise. Experimentation with new tastes and exposure to new foods will make it much more exciting. Many of your students will be hesitant about trying new foods and should be encouraged. Even if they decide that they dislike the vegetarian dishes they will still have learned that there are alternatives.

We have tried to keep the preparation of these recipes simple. Some can be made in front of the class. Some can be brought in as a project by a small interested group.



Unit IV Section 3
Gather Together: Community Action

Objectives: Students will learn:

1. Changes in the local food system are happening right in the community.
2. Food co-operatives offer an alternative to the supermarket.
3. Community gardens allow farming in urban setting.
4. Growing your own vegetables can be economical and satisfying.

Timetable:

1. Food co-op activity — allow class time before visit for organizing interview questions, and after for discussing observations; can be open-ended if students decide to volunteer to visit or work in a co-op.
2. Garden activity — extensive time out of class for research. Project can be open-ended if students decide to start a garden.

Background information: Food cooperatives

Several telephone calls should be made by the teacher in advance for student visits in order to ensure that your students will show up at a time they can be welcomed and in groups of a size such as not to swamp a small storefront. Buying clubs in particular might require an advance appointment with coordinators since they usually do not have open hours.

The best way for your students to find themselves welcome at a food co-op and also for them to experience the responsibilities of membership is to schedule 2-3 hour shifts for volunteer work, a few students at a time.

Background information: Community gardens

Students can call city hall or the state government for information as to which community gardens exist, where they are located and how plots are assigned. (See also the following list of resources.)

From mid-April through early fall (these are New England dates) practicing gardeners can be found daily at work in community gardens and students should keep their eyes open in their neighborhoods. Gardeners can give interested students a wealth of information from their own experiences.

If there are any school grounds available, consider a short-term garden for spring. If planted in late March-early April (Boston dates), students should get some yield by the end of June for radishes, lettuce, scallions, peas, and spinach. Radishes, by the way, are the quickest yielding never-fail crop there is. If you live in warmer climes than Boston, then a school garden becomes even more reasonable.

If your students do decide to start a garden, remind them to allow for 5-10 hours of labor per week from among their gardening group: more for planting time, less right before harvest. On-going gardens tend to fail from neglect: choked by weeds, unwatered during droughts, invaded by pests or starved for soil nutrients. While on the subject of pest invasion, it will be important to discuss with your students a strategy for pest control, whether biological or one of the less toxic chemicals. Library books exist with all sorts of advice, not only on pest control but on how much composted manure or 5-10-5 chemical fertilizer is necessary for a 25' x 25' garden,

when liming is necessary, whether to buy started plantlings or sow seed directly, etc.

For the activity on calculation of cost-benefit, the following supermarket prices for August (1979) might be helpful, particularly if your students are working in the winter-time when all that is available for comparison is imported fresh vegetables at high cost.

corn	$1.25/dozen
tomatoes	$0.59/lb
carrots	$0.29/lb
greenbeans	$0.49/lb
broccoli	$0.69/lb
onions	$0.69/3 lb
scallions	$0.25/bunch
cabbage	$0.19/lb
peppers	$0.59/lb
eggplant	$0.45/lb
cucumber	$0.10/1 piece
squash	$0.49/lb
lettuce	$0.39/head

Resources

1. Boston Urban Gardeners, 66 Hereford St., Boston, MA: they publish a newsletter, have community gardening information and slide shows.
2. Gardens for All, Box 371, Shelburne, VT 05482: this is a national gardening organization with a newsletter and other publications.
3. Institute for Local Self-Reliance, 1717 18th St., N.W., Washington, D.C. 20009 (202-232-4108): this is a national interest group oriented towards labor-intensive technology. Publications available.
4. Division of Agricultural Land Use, Mass. Department of Food and Agriculture, 100 Cambridge St., Boston, MA 02202: they publish "How to organize a community garden in Massachusetts".
5. U.S. Department of Agriculture Cooperative Extension Services (in every state).
6. Project Outside/Inside, 81 Highland Ave., Somerville, MA 02143: fourth-sixth grade gardening curriculum (easy but comprehensive). *Ladybugs and Lettuce Leaves*, $7.00 for student text; $5.00 for teacher manual.

References

1. ***Eating Better At School*** (1980) 32 pages of facts, success stories, nutrition information on improving school food. $2.00 from Center for Science in the Public Interest, 1755 S. Street, N.W., Washington D.C. 20009.

2. ***Food Co-op Handbook***, by the Co-op Handbook Collective, Houghton Mifflin Co., 1975, $4.06 paperpack.

3. *Co-op Directory 1980*. The Cooperative Directory Association. P.O. Box 4218. Albuquerque, New Mexico 87196 ($5.00)

4. Ronco, W.,Food Coops — *An Alternative to Shopping in Supermarkets*, Boston, Beacon Press, 1974.

5. Zwerdling, D., "Shopping Around: Non-profit Food." in *Working Papers for a New Society*, 3 (Summer, 1975)

6. Zwerdling, D., "The Uncertain Revival of Food Cooperatives" in *Coops, Communes and Collectives*. John Case and Rosemary Taylor (Eds) Pantheon, N.Y., 1979.

7. Food Coop Project. *How to Form a Food Co-op*. (Write to Food Coop Project, 64 Lake St., Chicago, Ill. 60601)

Unit IV Section 4
Future Shock

Objectives:

1. Students will learn to distinguish between different directions in which our society may go in the future.
2. Students will show an understanding that current national policy not only affects us now but can have serious future consequences which students should be able to predict.

Timetable: Two class periods, with reading assignment in between as homework. Or, alternatively, have students read stories outloud in class.

Activity 1 —Congress votes

We have chosen five laws which are currently in the regulations of the U.S. Department of Agriculture. You may need to explain the idea of farm *subsidies*. (See glossary.) Students should be encouraged to imagine themselves Congresspeople at the time each law was passed and to argue for or against each bill in class.

If an entire class is against a particular law, then ask them why they think it was actually passed. What special interest groups may have lobbied Congress? What are the probable consequences of each law with respect to our food supply and health?

Science fiction

We have created two scenarios for the year 2030 (50 years from today) which describe the daily life and surroundings of teenagers. The emphasis is on the food they eat and how it is produced. We have tried to create a definite dichotomy between the two and so have exaggerated the contrasts.

Future I projects a computerized totalitarian future of directives from above, dependence on synthetic petrofoods and everything artifically plastic. It comes from a logical extension of the general trends we see around us today.

Future II suggests the possibility of a society where decisions are made by cooperative consensus. Ecological and health considerations are foremost. The average person is much more involved in policy making than today. A movement of our socioeconomic system toward Future II would require a substantial conscious change in direction toward some alternatives which only a minority espouse today.

1. Ask your students to think about how they would personally feel if they lived in Future I or Future II.
2. Which future would they like to see for their children's children?
3. Which scenario do they think is most likely to exist in 2030?

Activity 2 — All the news that fits we print

Any of these fictional newspaper headlines could possibly appear within the next decade. They involve questions of na-

tional policy or events of national or even world-wide consequence. The newsmakers may be governments, corporations or consumer groups.

Ask your students to discuss:

1. To which scenario, Future I or Future II, would each headline likely lead?
2. Given the current status of the world, which headlines are most likely to happen fairly soon?
3. Who would gain and who would lose from the event reported in each headline?

Unit IV Section 5
Global Visions

Objectives:

1. Students should synthesize their learning experiences in *Feed Need Greed* into a unified conclusion as to what are the problems of feeding the world's people.
2. They should be encouraged to venture their own ideas for change and for the future.
3. They will gain a realistic awareness of the obstacles existing at various levels but at the same time a sense that obstacles are not insurmountable. Change is possible.
4. They will be given the opportunity to evaluate their own responsibility for change and to make their own commitment toward activism. (Note: We do not expect students to read the last page and then march out to storm the walls of MacDonald's. We can only hope to cut through the apathy of some and kindle the spirit of wanting to do something in a few.)

Timetable: One-two class periods to be scheduled after students have completed work on any previous units. "Global Visions" is not meant to stand on its own. It is a summary section and relies on previous exposure to vocabulary and concepts.

Teaching method

Students should read paragraphs silently at their own seat or take turns reading out loud for the entire class. Discussion questions are intended for consideration at the point they are printed, following the reading of each sub-section and preceding the next subheading. They are meant for class discussion, not homework, and were chosen to promote group give-and-take.

Encourage students to pursue the implications of all answers; do not accept one-word answers of "yes/no". Students may want to take opposing sides and we hope some questions will stimulate controversy. Their responses should be directed as closely as possible to their own personal feelings and experiences.

Cross-references to other chapters in *Feed, Need, Greed*

We expect that most teachers have picked and chosen only those selected sections for their classes to use for which they have had time and interest.

The following is only a guideline.

subsection in "Global Visions"	
Personal is political	Unit II The lean and the lumpy III, 4 Bottle or breast IV, 2 Choosing what you chew
We're in it together	III, 1 Tastes like love III, 2 Survival of the fattest IV, 3 Gather together
Let's get the fat out	II, 3 The big killers: sugar and fat II, 4 What *are* they putting in my food
World hunger	I, 1 Exploding the population myth I, 3 Gobbling up the earth II, 1 The Price of hunger III, 3 Harvest of shame IV, 4 Future shock
Imperialism still lives	I, 3 Gobbling up the earth III, 2 Survival of the fattest
We have met the enemy and it is us	IV, 1 Introduction to change
Making change happen	I, 2 Why do people have children? IV, Future shock

Background information:

You may have to help your students answer some questions with some of the current events knowledge you have and they lack: farm surpluses, FDA, Surgeon General's report, foreign aid policy, famines, revolutions, etc. What they know depends of course on what their social studies classes have covered, what part of the U.S. they live in, and how big a part of their home lives are newspapers and TV news.

Point of view

"Global Visions" probably reveals more than any other section the political convictions of the authors. While we tried to avoid heavy rhetoric, we feel that a neutral "discover it yourselves" approach is inadequate to teach what we feel are important realities of the system, world economic order, political control, *status quo*, or what have you. We decided to lay the issues out and give students the opportunity to consider and discuss our views and then decide for themselves what they can accept and believe. We hope that they feel challenged.

Resources

What Can We Do? A food, land, hunger action guide by William Valentine and Frances Moore Lappe, Institute for Food and Development Policy, 2588 Mission Street, San Francisco, CA 94110 (1980), $2.45. The bulk of the book consists of interviews with organizers in food — and hunger-related projects. The I.F.D.P. also publishes the magazine *Food Monitor*. Write to them for their literature list.

Overcoming World Hunger: The Challenge Ahead. Report of the Presidential Commission on World Hunger, March 1980 (PCWH, 734 Jackson Pl., N.W., Washington, D.C. 20006) Purchase from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

UNIT I

The Numbers Game: Population and Resources

Nick Thorkelson

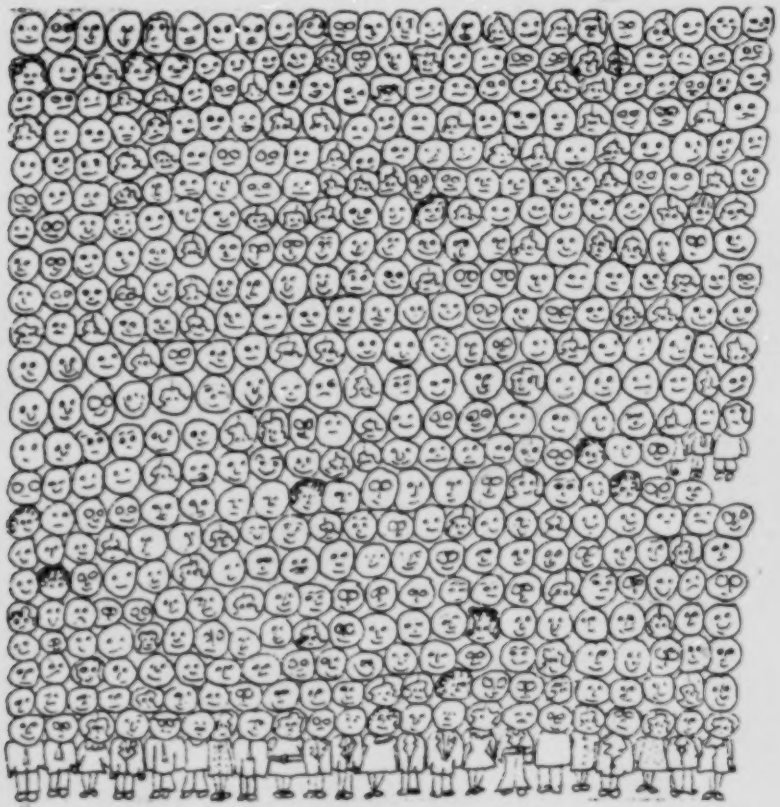
UNIT 1
SECTION 1

Exploding the Population Myth

Millions of people around the world suffer from hunger, malnutrition, disease and poverty. We want to understand why this is so, and what we can do about it.

But before we start, we have to confront the myth that these problems are *due* to "overpopulation." Overpopulation is said to *cause* poverty, malnutrition and death in many parts of the world. If we believe that, then we have to believe that the main "solution" to world poverty, hunger and suffering is population control — whether people like it or not, by force if necessary.

Just what is meant by overpopulation?



Overpopulation and overcrowding

Some people mean "overcrowding" when they talk about overpopulation. Crowding is measured by the *population density*, that is the number of people in a given unit area of land. You can calculate the population density of any country by dividing the total population (in millions of people) by the total land area of that country (in square kilometers). Example: the U.S. has 222.5 million people in 9,171,000 sq. km.

$$9{,}171{,}000 \overline{)\,222{,}5000{,}000} = 24.3 \text{ people/sq. km.}$$

Before we look at the actual numbers, think about the countries: Japan, the Netherlands, Brazil and India. What picture comes to mind of each country? Write your image in the chart below.

Rank order the countries from most crowded to least crowded. Number them in the chart below.

Now let's look at the actual figures, from the *United Nations Demographic* (this means population) *Yearbook:*

Country	Image	Your rank order guess	Population (in millions)	Surface area (in sq. km.)	Population density
Japan			111.9	372,000	
Netherlands			13.0	40,800	
India			548.2	3,287.000	
Brazil			92.3	8,512,000	

Now calculate the population density of each country (that is, divide the population by the surface area — watch your decimal points!) and write these into the table.

Now look at which country is the most densely populated. Which was it?

Which is least densely populated?

Did the real numbers give you different answers from your guesses?

Do these numbers change your picture of each country?

Overpopulation and poverty

People often talk about overpopulation being a major problem in India or Brazil, but they never say that Japan or the Netherlands is overpopulated. Why is this so?

Part of the reason is that most of the people in India or Brazil are poor and hungry, while fewer people in Japan or the Netherlands are so poor. Now we can see another meaning of the term "overpopulation": it is used to mean something very different, namely, *widespread extreme poverty*. Some people use the term "overpopulation" when they really mean that most people are poor and have little or no food and housing, regardless of population density. Do you agree?

Overpopulation, poverty, and density

People who think the basic problem is overpopulation often believe that there are more people than can be supported by the available supply of food. The most famous person associated with these ideas is Thomas Malthus (1766-1834). Malthus is known for the idea that the number of people increases **geometrically** while the food supply increases **arithmetically**. A *geometric increase* results from repeatedly *multiplying* by a certain number; an *arithmetic increase* results from repeatedly *adding* that certain number.

In order to better see the difference between geometric and arithmetic growth, let us start with the number one and *multiply* repeatedly by 2 (geometric increase). Now *add* repeatedly by *two* (arithmetic increase) and compare the results at each stage:

	Geometric increases	Arithmetic increases
Beginning	1	1
After one stage	2	3
After two stages	4	5
After three stages	8	7
After four stages	16	9
After five stages	32	11
After six stages		
After seven stages		
After eight stages		

Notice how the difference between the two is now "taking off." You calculate the sixth, seventh, and eighth stages. What are the differences between the two columns at each stage?

Thomas Malthus thought, as have many others (called neo-Malthusians) since his time, that human populations increase at a geometric rate, while food and shelter increase only at an arithmetic rate. If this were true, the gap between population and food supply would increase very rapidly, and many people would die of starvation and disease. This is what Malthusians predicted. In fact, he was wrong.

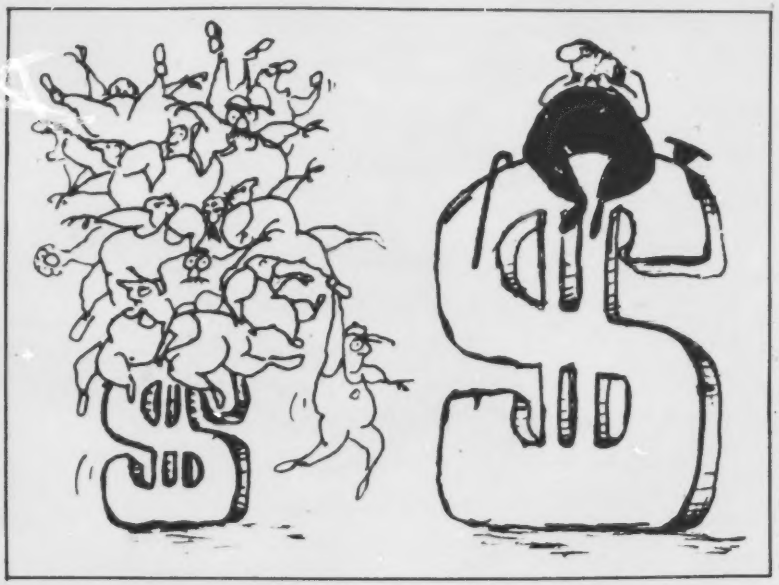
Rini Templeton, NACLA

Why was Malthus wrong?

1. The birth of a new person not only increases the need for food (and clothing and shelter) but also means there is one more person available to help in the production of the necessities of life.
2. It is not true that human populations always grow geometrically at all times in history.
3. It is not true that food supply increases arithmetically. Malthus simply made that up. He ignored the explosive effects of science, technology, changes in land ownership and in ways of organizing work. In the last 25 years, food production in less developed countries has increased at about the same rate as population (except for Africa).

4. Malthus implied that women give birth to as many babies as they can. He did not see that women have practiced birth control for thousands of years. People will *decide* how many children they want, if given the opportunity.

5. Finally, and most importantly, people are not starving today because the food is not there. There is plenty of food in the world today for all people to be well nourished. People starve because they are prevented from owning land on which to grow food for themselves. And people starve because they are not able to make enough money to be able to buy enough food. Food which is produced is not automatically distributed equally to everyone who is alive. Some people get more and many people get less, not because they need more or less but because they have unequal resources, money and power. What this means is that food *production* is not the same as food *consumption*.



Berke Breathed The Progressive

Why is Malthus still popular?

Malthus' ideas were a message to poor working people that said: "You are causing your own poverty by marrying and having children when you can't support them. The problem is yours." This message denied that the rich and powerful had any responsibility for poverty, illness and death of the poor.

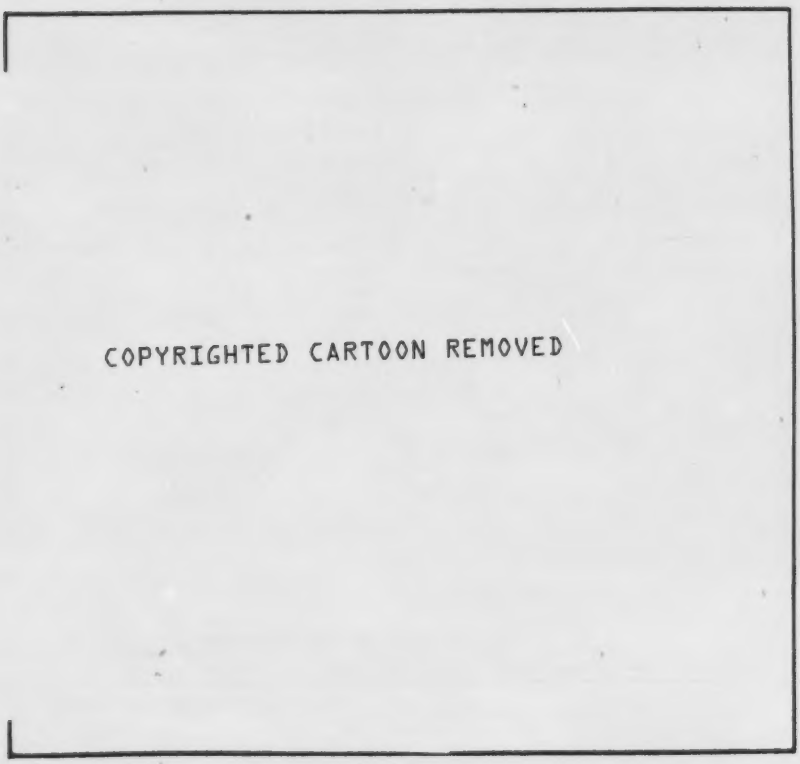
Malthus implied that there will always be the poor and miserable and that poverty is *natural*. If you believe poverty is natural, then you would be wasting your time to try to do something about it. Malthus' view, therefore, serves to weaken poor peoples' attempts to end poverty.

By blaming poverty on the poor, Malthus helped the rich and powerful feel justified to keep and expand their wealth and power.

Today the wealthy and powerful people, just as in Malthus' time, want to hold onto their power and privilege. The *majority* of people

want to change things so that they can have better lives and more control. Poor people know by experience and also need to learn that there is nothing "natural" about their poverty. Wealth and excess power creates poverty.

Malthus' mistaken ideas are still popular today because they justify and maintain those who benefit from the ***status quo***. The **capitalists** (those who own and control the factories, banks, and big companies) need theories which can convince themselves and the poor that changes are impossible and that inequality must exist. Realizing that Malthusian theories are myths, is part of the process of poor people taking control of their land, resources, wealth and power — of their lives.



Famine, poverty, and overpopulation

In summary, hunger, disease, suffering and death are not caused by overpopulation. Therefore, "population control" will not solve the problem.

Malthus' views are not accurate descriptions of the ways things really are. They are convenient excuses for the few who benefit from the way things are.

Why Do People Have Children? UNIT 1 SECTION 2

The question of why people have children is a complicated one. To begin to answer it, read what happened in a village in India where a U.S. family planning team tried to introduce birth control.

For six years a million dollars was spent on extensive birth control education and free birth control in seven "test" villages. It was found that the birth rate decreased in the test villages but no more than it did in seven "**control**" villages. In other words, the decrease was due to causes other than the birth control project. The expensive project had failed.

Married couples in the test village said that they approved of family planning in principle, but apparently they were only trying to be polite. Many "test" villagers accepted **contraceptives** but did not use them or only said they used them. As one villager said: "Someday you'll understand. It is sometimes better to lie. It stops you from hurting people, does you no harm, and might even help them." Another villager explained how he responded to the education efforts of the professionals from the Harvard School of Public Health and the Rockefeller Foundation by saying: "But they were so nice, you know. And they came from distant lands to be with us. Couldn't we even do this much, just take from them a few tablets? . . . All they wanted was that we accept the tablets. I lost nothing and probably received their prayers . . ." Why didn't the villagers use the contraceptives they accepted?

In the villagers' eyes, people are not poor because they have large families. Instead, they have large families because they are poor. Just what is life like in these Indian villages?

Workbook/CPF

Every family member counts

Most people live by farming. Those villagers who cultivate their own land own small farms averaging only 6-16 acres. When a farmer dies, his land is fragmented — that is, divided into even smaller plots for each son (and since 1956 each daughter). The family planners thought that this inheritance law might motivate a farmer to limit the number of his inheritors. But to the farmer, the major problem is not the fear of fragmentation at his death, but rather, it is how to make a living off the land during his own lifetime.

The small farmers are too poor to hire laborers. To quote one of the villagers, "In farming, there is no money if you don't have sons to help you." The practical way for the farmer to get labor power is by adding to his family. The farmer sees each birth as an investment.

What about the women? A farmer's wife must prepare meals for her husband and children as well as for hired laborers even on a rainy day when the farmer does not work. In landless families the women may have to do field labor in addition to working at home. There is much social pressure from religion, myths, traditions, and rituals on women to have children. A barren (childless) woman or a woman who has only daughters may be made fun of, ignored, or divorced.

Daughters are married in arranged marriages to families of appropriate **caste** and economic position from outside their own village. Thus, the family structure is **patriarchal** and **authoritarian**.

Children, as part of the family, must contribute to it. Each morning before going to school young children help bring grass and water to cattle and they help in the fields after school. Sometimes children of a landless laborer cannot go to school because the money they earn during the busy harvest season is needed to help the family save up for slow seasons. Older children may move away to a city to earn some income to send home to the family. Aged people live with and are supported by their sons' families, since the daughters have been sent away to different villages. Because of a high **infant mortality rate**, an Indian must have lots of children to be sure that a few survive to take care of him in his old age. Also, if there is a natural disaster, such as a flood, having enough children around to help rebuild is considered an advantage.

The professionals running the birth control project tried to use public health education to combat what they saw as ignorance of the villagers. But as we have just seen, the villagers are not ignorant. They have little reason to welcome contraceptives until they can change their difficult economic situation.

Lorraine Shein/LNS

Discussion Questions:

1. The average family size in India is 6 compared to 3.5 in the U.S. Calculate the average family size for your class. To do this, add the number of children and parents in each family of all the students in your class and divide this total by the number of families. Do you think your class is typical of America? Give four reasons why you think there is a difference between India and America.
2. There was a decrease in the birth rate of both the "control" villages (no birth control education nor free birth control) which was the same as the decrease in the "test" villages. This might be explained by a rise in the age of marriage. Why do you think this change might have happened?

3. Would you like to have children? If yes, how many? If no, why not?

4. Do you want to have more children yourself than your parents have had or fewer? Why the difference?

5. What would you decide if the government paid you bonuses to have more children? Bonuses to have fewer children?

6. Do you think your decision as to the number of children you'd like to have would be different if:

you/your family lived in an area frequently hit by disasters such as floods or hurricanes?

you/your family owned a farm or did farm labor?

7. Who brings income into your family? Do you?

8. Where do the elderly people in your family live? What money do they live on?

9. Imagine that there was no Social Security, Medicare, insurance policies, and job pensions in the United States (these don't exist in India). Could you expect to have your children take care of you in your old age? What are your options?

10. What are advantages and disadvantages to having children in this country? Find out how much it costs. Compare this to the advantages and costs in India.

Chris Demarest

Agree or disagree

Agree or disagree with the following opinions traditionally expressed about children. Which opinions come from cultural and social traditions? Which opinions are based on economic factors? Discuss these with your classmates and teacher.

1. It is only natural that a man and a woman should want children.
2. A girl becomes a woman only after she becomes a mother.
3. A man has a duty to have children to continue the family name.
4. Having children strengthens the bond between husband and wife.
5. Having children is the most important function of marriage.
6. It is a person's duty to society to have children.
7. A person with children is looked up to by the community.
8. One of the best things about having children is you are never lonely.
9. It isn't right for a couple to interfere with nature by deciding to limit the number of children they will have.
10. Having children is an insurance you will be cared for in old age.
11. You have an opportunity to shape your children as you want.
12. Children are a help in housework, family chores, practical help, earning income.

Paradox:

Americans with lots of resources tend to have fewer children while Indian families are very poor but want many children. Why is this?

Gobbling Up the Earth

Activity 1 — Waste not, want not

The physical world includes everything we touch, see, ride around, eat, drink and write with. The world provides us with all the necessary materials to make clothes, homes, food and comforts.

Brainstorm on the board the physical comforts in your home that you consider important.

Workbook/CPF

Resources: renewable and non-renewable

We're going to call everything the earth provides a resource. There are many categories, but the two kinds we need to discuss are **renewable** and **non-renewable.**

Food is a good example of a renewable resource, because year after year we grow new harvests and can replace that which we used. Sometimes, however, there are shortages of renewable resources if a natural disaster like a hurricane occurs. People can pollute and poison the environment so that fewer renewable resources can be replaced. Shortages can also occur if the renewable item is priced out of someone's buying power; this is happening today with gasoline and food. If properly maintained and cared for, renewable resources can be replaced and provide us with basic necessities; think about the American Indians who survived centuries on only what the earth provides.

Clothes made of rayon and nylon are **synthetic** materials, made from coal tar derivatives. Can you explain why these are examples of non-renewable resources?

Look around the room and name other objects that are made from non-renewable resources.

Next to the items in the list below, put an R next to those you think are renewable and an N next to those you think are non-renewable:

coal _____
paper _____
iron _____
flour _____
gasoline _____
leather _____
oil _____
tin _____

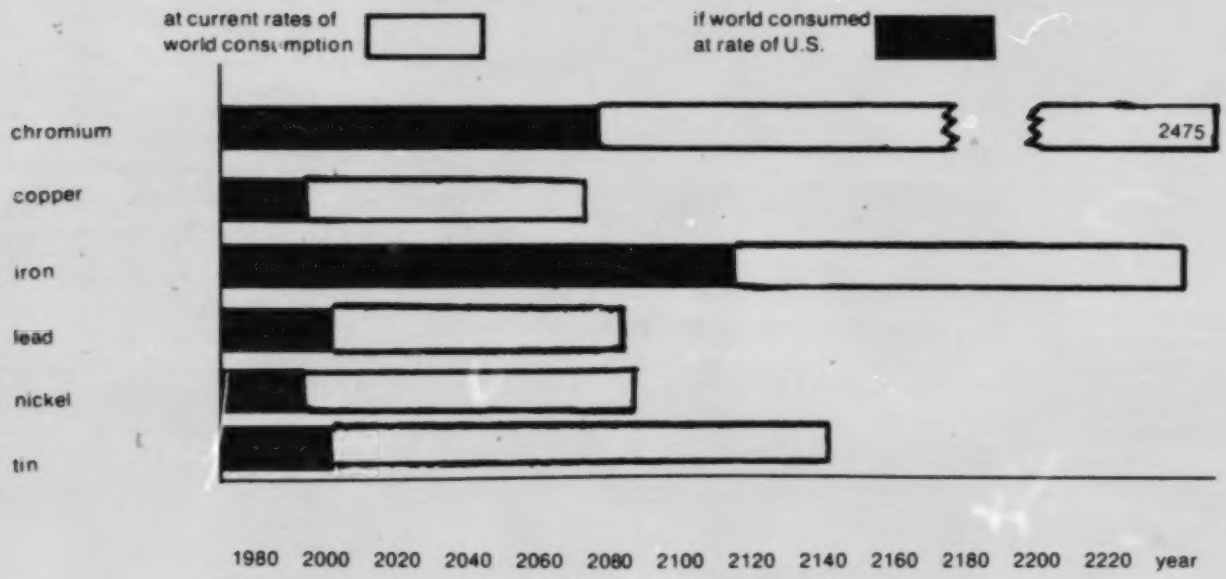
"I don't see how three-quarters of the world can be starving— this restaurant is always packed."

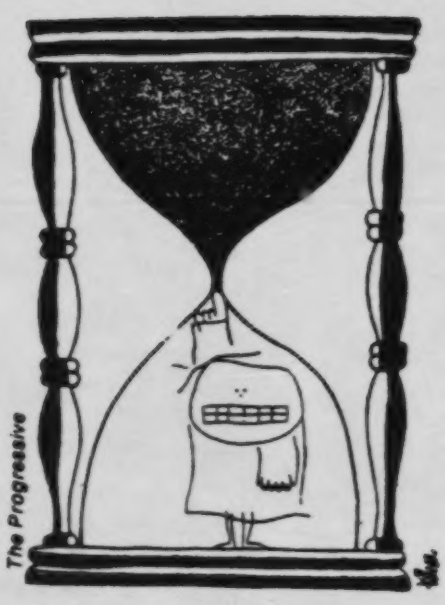
Heath from Punch

A huge problem in the world today is the **depletion** of non-renewable resources. These we cannot replace by growing more. When they are gone, they are gone.

Look at the graph of the lifetimes of non-renewable resources.

Projected Depletion Dates for Mineral Resources

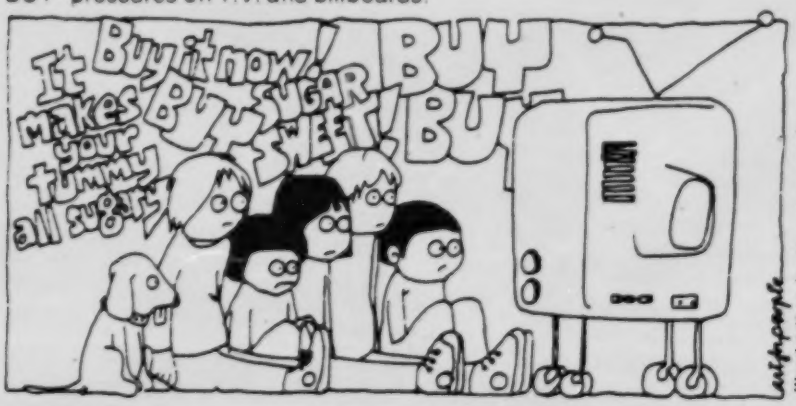




The bars show the predicted depletion dates if each resource continues to be used at the current rate of consumption. If the entire world population had the U.S. standard of living, the depletion dates would be much sooner! This is because the U.S., with only 6% of the world's population, consumes, or uses, non-renewable resources at a much faster rate than any other country. A serious problem is that the developing countries are encouraged to model their lives on the American standard of living. They see this model as one which they hope to achieve one day.

The Western lifestyle is made possible in Canada, Europe and Japan because they manufacture so many machines, radios, and consumer items. They are only able to do this because people from industries in these countries go to other countries where the non-renewable resources are located and run the mines and factories. For example, the British have controlled the mining of tin in Bolivia for centuries. Non-renewable resources are being exported out of less developed, mineral-rich countries and used in developed nations. The less developed countries often have little control over their own resources. A big contradiction is that they are encouraged to live the Western lifestyle which they cannot afford. By looking at the graph again, you can easily see that more and more people will never be able to live the Western lifestyle. The U.S. is *not* a good model for the rest of the world if all people are to have the basic necessities of life.

Americans must be allowed and encouraged to change their lifestyles before the depletion of non-renewable resources forces it upon them. This means we must develop *renewable* energy sources such as solar and wind energy, and wear and use natural fibers. We must work together to try new "alternatives" in technology which are less wasteful and extravagant and also less dangerous. We must free ourselves of the control over our lives by advertising and the "BUY-BUY-BUY" pressures on T.V. and billboards.



Let's examine the list on the board and divide the items into *necessities* and *luxuries*.

Discussion questions

1. Name at least five things which you or your parents own which cost over $200.00. This happens to be the average annual *per capita* income of the poorest third of the world's population.

2. If they could have anything, what would your little brother or sister want for Christmas? Where do these desires come from?

3. Name five sources from which we derive our ideas of the "good life".

4. Name five ways your own everyday activities either contribute to or produce ugliness, waste, and pollution.

5. Do you expect to have three meals a day always available to you? What are the major considerations in choosing and buying food?

6. Could you get along without food listed as **cash crops** (e.g. coffee, tea, cocoa, pineapple)? If the choice is between a country growing non-essential cash crops for you or essential foods, like wheat or rice, for themselves, which would be best?

7. What goods and services do we use and rely on every day that were not generally available 75 years ago? Use the list you put on the board at the beginning of this section as a starting point.

8. Which of these goods and services could not be produced or operated in the absence of raw materials and components produced in poor countries?

Rini Templeton, NACLA

Thank You Tio Sam*

by Mary Mackey

We took their fish
and left them bones
took their copper
and left them stones
took their fruit
took their oil
took their lumber
stripped their soil
made them grow coffee
instead of corn
so their children starved
before they were born
we took their cattle, took their meat
left their people with nothing to eat
built roads and ports
to rob them faster
(Gringo aid
is a national disaster)
and now we all
wonder and brood
at Latin America's ingratitude.

Tio Sam is Spanish for Uncle Sam

Taken from the ***Nicaragua and Central American Report*** *Vol 1 #2 Feb 1980, published by the Nicaragua Solidarity Committee, Box 1919 Boston MA 02105*

UNIT II

The Lean and The Lumpy

Nick Thorkelson

UNIT II
SECTION 1

The Price of Hunger

Activity 1 — Do I feel starved?!

Brainstorm on the board what the words "hunger" and "starvation" each mean to you. Come to an agreement on the meaning of each.

How many of you eat breakfast or lunch less than two or three times a week because you are in a hurry or on a diet? Describe how this makes you feel while you are sitting in class hungry.

Facts and statistics

Brazilian Info. Bulletin/cpf

500 million people in the world today suffer from malnutrition. That's two times the population of the U.S.

12,000 die of hunger each day worldwide

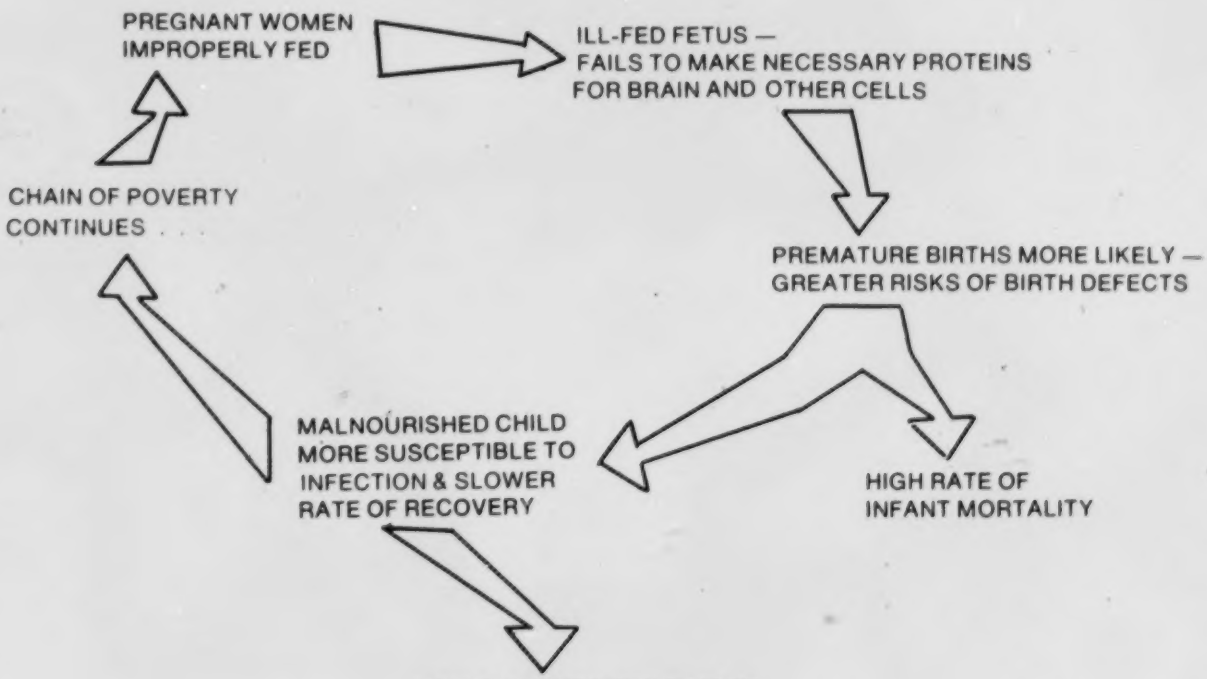
1 billion people more could benefit from improved nutrition because they suffer from blindness due to lack of vitamin A, goiter from lack of iodine, or anemia from lack of iron

Infant mortality rate is an important index of the nutritional status of a population as a whole. Let's look at some more facts:

Country	Death Rate For Infants Less Than One Year Old
Zambia, Bolivia	250 per 1000 (or 1 in 4)
India, Pakistan	140 per 1000 (or 1 in 7)
Brazil	95 per 1000 (or 1 in 10)
Sweden	12 per 1000 (or 1 in 100)
U.S.	19 per 1000 (average); 25 per 1000 in poor, rural areas & urban ghettos; 60 per 1000 for migrant workers

Morbid chain of poverty

The following chart diagrams the way malnutrition continues from generation to generation


PREGNANT WOMEN IMPROPERLY FED
ILL-FED FETUS — FAILS TO MAKE NECESSARY PROTEINS FOR BRAIN AND OTHER CELLS
CHAIN OF POVERTY CONTINUES . . .
PREMATURE BIRTHS MORE LIKELY — GREATER RISKS OF BIRTH DEFECTS
MALNOURISHED CHILD MORE SUSCEPTIBLE TO INFECTION & SLOWER RATE OF RECOVERY
HIGH RATE OF INFANT MORTALITY
MALNOURISHED CHILD MORE LIKELY TO HAVE DIARRHEA OR INTESTINAL WORMS WHICH CONTRIBUTE TO INCREASED MALNUTRITION AND GREATER RISK OF DEATH

Hunger in America

Undernutrition is not only something which is a problem "over there". It has been reported that at least 10 million Americans suffer from hunger and undernutrition. Cases of **kwashiorkor** and **marasmus** have been discovered among children of Mississippi sharecroppers, Navajo Indians on reservations, and migrant farmworkers. The poor do not lack food due to their own ignorance or laziness. It is a problem of poverty and powerlessness.

Kwashiorkor (known as the starvation disease) is a severe *protein* deficiency. It is visible as a distended belly, bulging eyes, loss of hair, and if untreated, can lead to death.

Marasmus is a severe calorie deprivation leading to death.

Table Scraps

More commonly the diet of poor Americans is lacking in calcium, vitamin A and vitamin C. Foods containing these nutrients, dairy products, vegetables and fruits, are the higher priced items in the store.

1. Name five reasons why you think infant mortality is greater in populations with poorer nutrition.

2. Name five deficiency diseases and tell what causes them.

3. Your teacher will tell you the population of the U.S.; figure approximately how many Americans are malnourished in the three different categories mentioned.

4. What are four reasons for world hunger.

The Boston Globe/cpf

Activity 2 — I Couldn't get by on that little money!

What do poor Americans do when they go to a supermarket to try to feed their families properly? How do rich or poor Americans spend their money?

You are going to have the experience of trying to feed a family of four for a week on one of three budgets. You will do your "shopping" on paper in the supermarket. Don't actually buy anything. Write down the prices of all food you would buy, how many packages, jars or pounds, and be sure you have kept within your budget. Remember that you want to try to keep you family as healthy as possible.

The class will be divided into three teams. Each team will be responsible for one of the three families and can "shop" together as a team. Be sure to be quiet and polite when you go into a supermarket.

Family One: you are a family of four migrant farm workers so your income is seasonal. After one year your total income from all family members adds up to $4,000.00. You cannot spend more than $25 a week on food or you won't have enough to meet your fixed expenses of rent etc.

Family Two: you are a four-member working class family living in a lower middle class neighborhood in a large city. Your annual income is $10,000. If you are thrifty and keep within your weekly food budget of $50, you should be able to eat fairly well.

Family Three: you are a middle class family of four living in a suburb. Your annual income is $20,000 and you spend $85 a week on food. You find you can afford to spend $20 of your $85.00 budget on eating out.

Notes to all teams! Write down any problems you have or questions you may want to have answered. Write a conclusion to your report which should include: how hard it is to stay within the budget assigned; a list of the healthiest foods affordable and the foods which are too expensive to buy that you think you should.

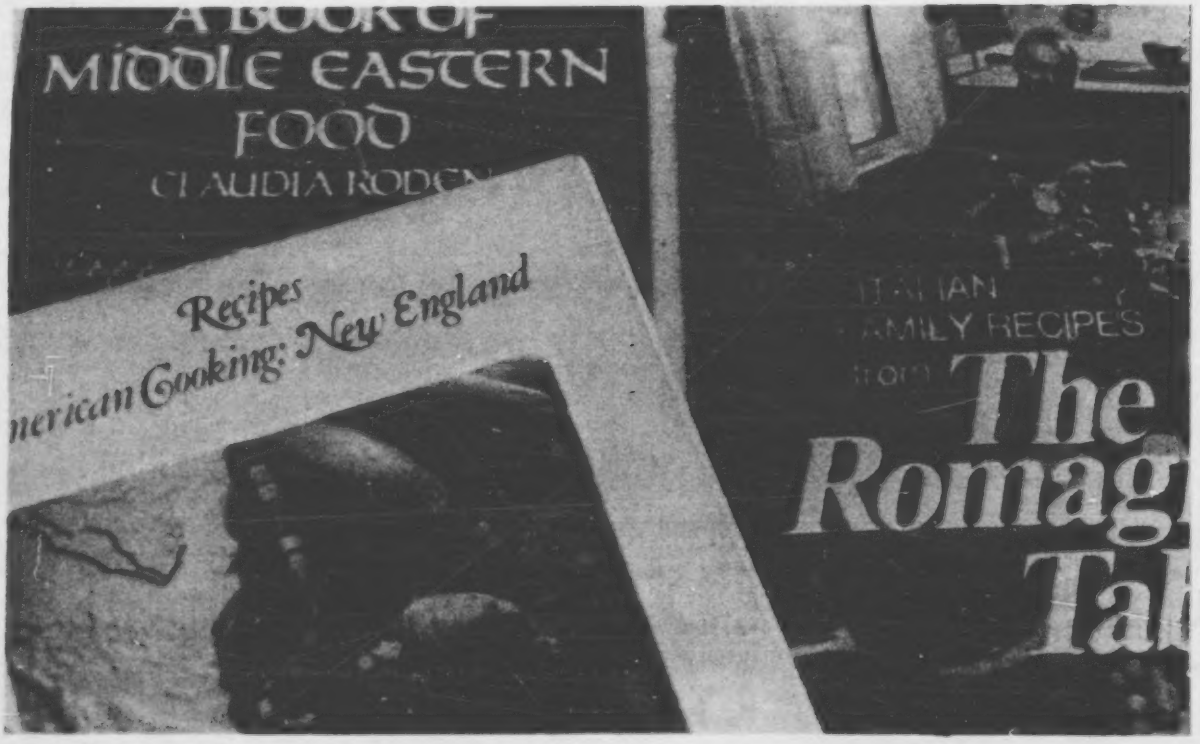
Discuss the ways the family can save money for food if you feel that's necessary.

Every team should make a written report and give a brief summary to the class.

Everyone admits that the food we eat today is different from the food eaten 50 or 75 years ago. The food industry likes to tell us that we are eating better food with a greater variety. Certainly any large supermarket seems to have an infinite variety of colorful packages. People concerned with good nutrition and health warn us that we are eating less fresh fruits and vegetables and more processed, sweetened, salted, fatty, and refined foods. The result is we are now suffering from certain physical problems (obesity, cavities, heart disease).

Some of the changes in what we eat may be due to more of us living in urban centers far away from farmlands where food is grown. Processing is used to preserve food in transport from rural to urban areas. Many of us now *buy* food products which used to be grown or *made* at home. Those families who once ate traditional old-country or ethnic foods now eat the "typical American" foods.

Food is becoming an industrial commodity manufactured by a few companies which are becoming larger by buying up most of the small processing companies. In effect we eat what is chosen for us by a powerful food industry anxious to make the highest profits possible. We eat what they decide to advertise and sell, based on profits made.



Interview

To learn more about changing eating patterns, interview a grandparent or great aunt or an elderly neighbor. Report back to the class what you have learned. If possible one or two grandparents can be invited to school as the class' guest. The following are ideas of what to ask in your interview:

1. What foods did you eat as a girl/boy?
2. What did you take to school for lunch?
3. What did you eat for breakfast when you were young?
4. What were the sources of your food?
   a. Did you eat home grown fruits and vegetables?
   b. Were foods grown by local farmers?
   c. What foods were made at home which we now buy at the store?
   d. Were there any supermarkets? What were the stores like?
5. What foods do you remember which you can no longer find at the store?
6. Do you think foods used to taste different?
7. How far did you walk to school?
8. Did your family have an automobile?
9. How often did you eat "out" (at restaurants, etc.)?
10. Do you think there were fewer or as many overweight people when you were a younger person?
11. In your own opinion, is the food we eat today better or worse than the food people used to eat? Why?
12. What do you think is most different (biggest change) about our eating habits or food supply?

You may think of other questions to ask your older person. Include them in your report. Share your report with your class.

Activity 1 — I bet you can't eat just one!

1. Name some salty foods you like.
2. Can you list 10 salty foods?
3. Besides foods like pretzels with *visible* salt, many foods have *hidden* salt. See table. What foods do you like which are high in hidden salt?
4. Canned vegetables are many times saltier than frozen or fresh. Check out the source of vegetables in your school cafeteria.
5. Common table salt is the mineral sodium chloride. We also get sodium from several different food additives: sodium bicarbonate (baking soda), sodium nitrate, sodium benzoate, sodium propionate, sodium ascorbate, monosodium glutamate.

   Look at the labels of food products (and also laxatives and antacids) for "salt", "sodium", or "Na". What foods you eat already have sodium added to them before they came out of the package?

Table: The Salt We Can't See

Item (with serving size)	amount salt (mgs.) 1000 mg = 1 gram
Processed Foods	
Bacon cooked (Oscar Mayer) 2 sl	712.5
Beans, baked red kidney (B & M) 1 cup	2025
Bologna (Oscar Mayer) 2 sl	1125
Bread, white (Wonder) 2 sl	742
Bread, whole wheat (Pepperidge Farm) 2 sl	535
Cheese, natural cheddar (Kraft) 2 oz	950
Cheese, pasteurized processed American (Kraft) 2 oz	2225
Cheeseburger, Quarter Pounder (McDonald's)	3022
Green beans, canned (Del Monte) 1 cup	2312
Peanut butter (Jif) 2 tbsp	445
Pickle, dill 1 large	4820
Potato chips (Wonder) 10	775
Pudding, instant chocolate (Jell-o) ½ cup (prepared)	1215
Soup, Chicken Noodle (Campbell's) 10 oz (prepared)	2625
Soy sauce 1 tbsp	3300
Unprocessed Foods	
Beans, red kidney, cooked 1 cup	15
Green beans, fresh 1 cup	12
Peanuts, unsalted 10	5
Potato, baked 1	12

from Nutrition Action *March 1978 pp. 6-7 (selected items only)*

You and your salt shaker

Do we need salt in our food? Sodium is an element used by our bodies in balance with potassium (another element) to keep the proper flow of fluids among and through our cells. Too much sodium and your cells retain excess fluids. The average person probably needs only about one fourth of a gram (0.25 g) of salt a day. This equals about 1/10 of a teaspoon. You normally would eat this amount in foods *without adding any salt.*

Most Americans eat more than 10 grams of salt a day and many who like salty food consume 18 grams or more a day. There is no physiological reason for a desire for salt. Rather, it seems that salt is an acquired taste. We have learned early to like salty (and sugary) foods. Our salt addiction may begin with commercial baby foods. It has been recommended that we should try to limit our salt intake to less than 5 grams a day — that is, well under two teaspoons.

Even though you may rarely use a salt shaker at the table you may still be eating lots of sodium in processed and prepared foods (as you learned from the table above). Food processors add salt to the foods they make as a flavoring agent, sometimes to mask other less appealing tastes. It helps them use fewer natural ingredients. Only rarely is salt used nowadays as a **preservative** (in bacon and ham).

Somerville Journal/cpl

Also, salty food makes you thirsty. This is because your body needs more fluids to correct the sodium imbalance in your cells. You have probably had this thirsty experience when you ate ham or potato chips. The food manufacturers know about salt and thirst too. The Frito-Lay Company, makers of Fritos, Lays potato chips, and taco-flavored chips, is owned, not coincidentally, by Pepsico, makers of Pepsi Cola. Join the Pepsi generation! The tradition of free salted peanuts at a bar or some restaurants is also considered a good investment by the bar owner because thirsty patrons will buy more beer or soda and other drinks. Have another one?

Activity 2 — Sphygmomanometer (whew)? I can't even say it!

Make a chart on the board and have all students write in their own names where they think they belong:

Salt table

salt food automatically before tasting
usually salt food after tasting
rarely add salt to food

Now take the **blood pressure** of each student in the class and write it next to his or her name on the chart on the board.

Once your teacher or school nurse demonstrates how to work the **sphygmomanometer** and the **stethoscope** you should be able to take turns taking each other's blood pressure. The sphygmomanometer is an inflatable rubber cuff connected to a pressure gauge. The cuff is wrapped around the upper arm and then enough air is pumped into the cuff to cut off circulation. As the air is gradually released another person with the stethoscope listens for the first sound of blood rushing through the artery while noting the pressure on the gauge at that moment.

The pressure measured at this point is called **systolic**, indicating the pressure exerted when the heart contracts. After the systolic pressure is noted air is continued to be released from the cuff. At the point when the sounds become muffled or disappear, the listener checks the pressure registered on the gauge. This is the **diastolic** pressure, which is the lowest level that occurs between beats, when the heart is at rest.

Blood pressure is written as two numbers, with the systolic pressure written over the diastolic pressure. *High* blood pressure is usually considered to be *greater than* 130 over 90 for adults or greater than 120 over 80 for children. Do you have high blood pressure?

Are you tense with hypertension?

Another name for high blood pressure is **hypertension**. With hypertension your heart must work harder. People with hypertension (estimated 25 million Americans) are more likely to have **heart attacks**, **strokes** or **kidney failure**. Hypertension is more common among blacks (26%) than whites (15%). Some families (white and black) seem to have more of a tendency for hypertension than other families. *Ask your parents if high blood pressure runs in your family.*

Nutrition Action

Put away the salt shaker

Look at the chart on the board: is there a pattern of one column of students having generally higher blood pressure than another column of students?

What might hypertension have to do with salting food? People with high blood pressure have long been told by their doctors to avoid salting their food. Salt has been found to cause an increase in blood pressure (by constricting blood vessels and/or increasing the blood volume) especially among those people who are more genetically susceptible. Some patterns have been seen in research studies in which people who like salty food are also the same people who tend to have high blood pressure. Cutting down on salt intake will probably decrease your chances of damage to your circulatory system by hypertension. Hypertension used to be thought of as a problem for older people but it is becoming more common among young people.

Just because salt is "natural" doesn't mean that it isn't dangerous. Watch your friends at lunch and your family at home. Do they salt their food automatically before they taste it? Is salt routinely added to food while cooking at home? Do they think salt is harmless?

Eating salty food brings with it the cost of higher health risks. You might want to try to kick the salt habit for a week to see if you can do it and how you feel.

For additional discussion - Should labels appear on certain foods similar to the warnings on cigarettes? "Caution - Doctors have determined that salt is dangerous to your health." Or should high sodium foods have a salt shaker symbol on the package?

Note: *If your blood pressure reads high during the classroom determination, you should have it re-checked by a doctor or nurse to be sure.*

How sweet it is!

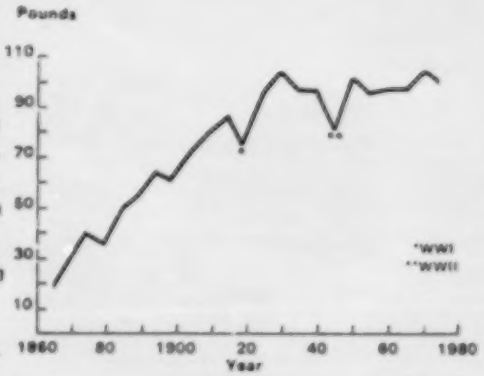
How much sugar do you eat? List on the board all the foods you ate yesterday that contain sugar or you think may have contained sugar.

How many sweetened foods do you think you ate last week?

What percentage of your diet do you think contains sugar?

Do you know that unsuspecting foods like peanut butter, canned corn, and spaghetti sauce contain sugar? Tomato ketchup is 29% sugar, Russian dressing is 30% sugar, and Coffee-Mate is 65% sugar. Compare these to a Hershey bar which has 51% sugar or ice cream which is 21% sugar.

So guess again. How much sugar do you *really* eat each day? *Each year?*



per capita annual refined sugar consumption

Let us look at some interesting facts. The average American consumes about 128 pounds of sugar a year (or 316 tons in a lifetime!). This comes out to about two pounds per week or 3/4 cups a day. Some teenagers are estimated to eat as much as five pounds of sugar a week. That's as much as the average American ate in one year back in 1900.

Sugar creeps into our diet in a multitude of ways, only some through the sugar bowl on our table or through baking of desserts. Let's find out how by going on a "scavenger hunt" in the supermarket.

Activity 1 — Scavenger hunt

Look for the following foods on your supermarket shelves and find the sugar listed on the label. Then rank order the products according to the amount of sugar it contains. You can estimate this by the place of sugar in the list of ingredients. For example, if sugar is listed first, then the ingredient in the greatest quantity is sugar. Look also for words like sucrose, dextrose, corn sweeteners, corn syrup, maltose, fructose, lactose: they are all sugars.

salt	Jell-o
Gaines-burgers	Apple Jacks
Ritz crackers	Shredded Wheat
Shake 'n' Bake Bar-B-Q	Post Raisin Bran
Hamburger Helper	

Workbook/CPF

COPYRIGHTED CARTOON REMOVED

Why is sugar added to so many foods?

Sugar is definitely a profit-making **commodity**. The food industry processes most of the foods we find in the supermarkets and uses sugar as a cheap additive or filler (only 10 cents a pound wholesale). Yet they will charge $1.69 for Sugar-frosted flakes when Corn flakes cost only $1.19. They take advantage of our sweet tooth. Whether we are born with a craving for sugar or we acquire an addiction (starting with sweetened baby foods, sugared snacks and infant formulas), we eagerly buy sweetened products. Nabisco recently even doubled the amount of sugar filling in an Oreo!

Some sugar in processed foods serves functions other than adding sweetness. Sugar absorbs and retains moisture and keeps foods from drying out rapidly. Sugar makes ice cream and other frozen desserts smoother and keeps them from melting too quickly. It can act as a **preservative.** Food corporations can use it to replace more expensive and nutritious ingredients.

Empty calories

But isn't sugar a natural food and one of the carbohydrates which we need? Sugars are natural products of various plants (fruits and vegetables). Sucrose (table sugar) comes from sugar cane or sugar beets. Even unsweetened apple juice still contains sugars, but there are two important differences: fruit juice gives you other **nutrients** besides **calories** , and the main fruit sugar, fructose, is somewhat easier on tooth surfaces than sucrose. Table sugar is **empty calories.** Many widely advertised "natural" or "old-fashioned" food products are still laden with added sweeteners. Raw sugar, brown sugar, turbinado sugar, or molasses offer no health advantages over the undisguised white stuff; it's all sucrose sugar. The only advantage of honey (mostly fructose sugar) over table sugar is that since it is so sweet you tend to use less of it.

Sugar is a carbohydrate and we do need carbohydrates in general as a large part of diets, but there are good carbohydrates and bad carbohydrates. It is important to eat lots of **complex carbohydrates** — starch and fiber — while cutting down on **simple carbohydrates** — sugars, especially those found in refined and processed foods.

Fat is fattening!

Activity 2 — High in Calories

Check off the foods you think are fattening. Why did you check them?

1. Apples _____	5. Spaghetti _____	9. Celery _____
2. Hot dogs _____	6. Pork chops _____	10. Roast beef _____
3. Bread _____	7. Baked potato _____	11. Rice _____
4. Cream cheese _____	8. Bologna _____	12. Ice cream _____

Place an X next to the foods your teacher tells you are more than 50% fat.

Do the X's differ from your checks?

What is similar about the high-fat foods?

Were you surprised to find that potatoes do not contain much fat? This is not always true. When do you think potatoes are fattening?

Let's compare the "fat calories" in a baked potato and in French fries. To do this you must know that fats have 9 Calories per gram, carbohydrates have 4 Calories per gram and proteins have 4 Calories per gram.

A baked potato weighs 99 grams.

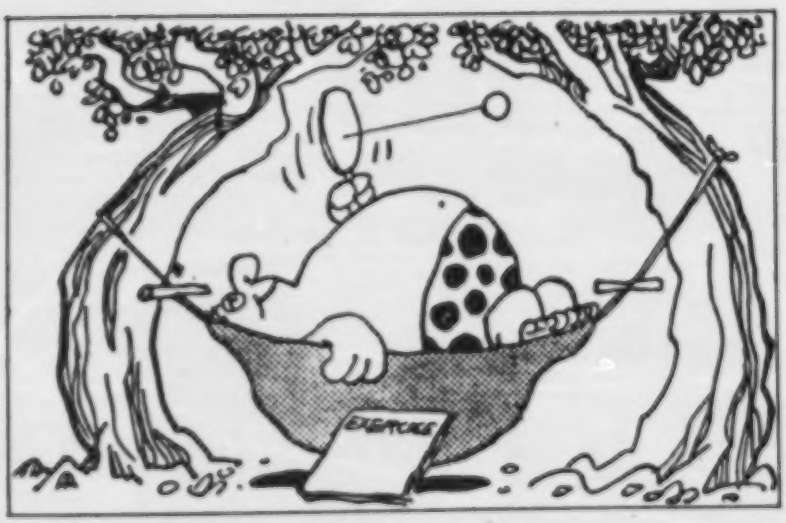
It has:
3 grams protein
21 grams carbohydrates
0 grams fat

How many Calories does it have?

A serving of 17 French fries weighs 97 grams

1.7 grams protein
34 grams carbohydrates
12 grams fat

How many Calories does it have?



Activity 3 — Peanut butter sticks to the roof of your mouth

Not all fats are the same. Look at two jars of peanut butter: one, a conventional jar bought in the supermarket, the other, the unprocessed "natural" kind. What differences can you taste? Compare the tastes.

Labels: Skippy — peanuts, dextrose, hardened (hydrogenated) vegetable oil, salt, sugar.

"Natural" peanut butter — peanuts, (salted or no salt added)

1. Why doesn't Skippy separate out?
2. What are the differences in the label?
3. What does hardened or hydrogenated mean? What is its effect on the peanut butter?
4. Why is there sugar and/or dextrose in peanut butter?
5. Fifty years ago you would never have found peanut butter to buy like Skippy. Now unprocessed or "natural" is harder to find. Why?

Activity 4 – Who is Mr. Cholesterol?

You have probably heard the word cholesterol but do you know what it is? Which of the following statements are true?

1. Cholesterol is found only in foods that come from animals.
2. The amount of exercise affects the amount of cholesterol in our blood.
3. Cholesterol is found in our body and is necessary for life.
4. Everyone is equally affected by the amount of cholesterol they eat.
5. Everybody with high amounts of cholesterol in their blood will have a heart attack at some point in their lives.

Check the foods which you think are high in cholesterol:

eggs
cornchips
butter
cheese
bread
beef
corn oil
ice cream
spaghetti
milk
margarine
watermelon

Even if it doesn't kill you, you'll need false teeth

Your sweet tooth

Refined and processed sugars compose almost 20% of our diet. Sugar helps to rot your teeth. Tooth decay is considered the most widespread nutritional disease. 98% of the American population have **dental caries**. The sugar you eat is food for the bacteria normally present in your mouth. Bacterial activity on sugar produces **glucan** which sticks to the tooth surface and hastens the build-up of **plaque**. Other bacterial byproducts are acids: lactic, formic, and acetic. These acids are held by the plaque against the tooth surface and attack the tooth enamel. Sticky candy can do more damage to your teeth than a soft drink because it sticks around longer. Sugary snacks are worse than sweet desserts or foods eaten at meal time.

COPYRIGHTED CARTOON REMOVED

I can't believe I ate the whole thing!

America as a nation is growing fatter. About 20-30% of Americans are overweight — more than 10% above the normal weight for height. Sugary foods have replaced more nutritious foods. The sugar itself doesn't make you fat; it's the excess calories and the fact that it dulls the appetite for more nutritious foods.

Another problem is that we eat too much fat. Fat is an essential part of our diet; it helps us absorb vitamins and keeps us from getting hungry. But we are eating 30% more fat now than in 1919 and we are not as physically active. More and more people are **obese** and **obesity** is bad for a person's health. It increases the probability of such disorders as heart disease, high blood pressure, diabetes, gallstones, varicose veins and arthritis.

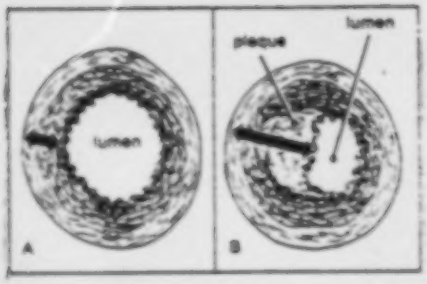
Sugar and fat kill

As American consumption of sugar and fat has increased since the turn of the century, so has the incidence of heart disease and cancer, the two most common causes of death in the U.S. Too much sugar, fat, and cholesterol are linked in complex ways to many common health problems. Reduction of sugar, fat, and cholesterol may help us avoid "modern day" diseases. Prevention requires personal health changes now to avoid the pain of disease and the expense of cures later.

Activity 5 — Family history survey

Did or do your grandparents, aunts, uncles, mother or father suffer from heart disease? What have been the causes of death in your family? What diseases do your relatives currently have? What illnesses run in your family?

Take the following list home and put a check beside the diseases which affect or have affected your family.



Diagrams show cross-sectional views of (A) a normal coronary artery of a person who died; and (B) a severely diseased coronary artery of a middle-aged man who died of a heart attack. The arrows indicate the thickness of the artery wall. Note the large opening or lumen through which blood was able to flow freely in the normal artery, and the markedly reduced lumen, which has been largely replaced by an atherosclerotic plaque, in the diseased artery.

American Heart Association

_____ heart attacks	_____ hypertension (high blood pressure)
_____ stroke	_____ diabetes
_____ cancer	_____ varicose veins
_____ accidents	_____ arthritis
_____ gall stones	_____ obesity
_____ kidney failure	

If you tally up the results for the whole class, you might find that heart attacks, strokes, and hypertension are very common.

Heart disease or cardiovascular disease is the leading cause of death in the U.S. There are many types of heart disease but they generally fall into three categories:

heart attack — blood cannot get to the heart muscle and without enough oxygen heart cells die

stroke — blood cannot get to the brain and without enough oxygen, brain cells die

high blood pressure (hypertension) — the heart has to pump very hard to get blood through the body

Heart attacks and strokes occur when the blood vessels get "clogged up". Think of this as a process similar to when a pipe which is old has crust built up.

insert graphic

The wider the opening, the easier blood can pass through. The smaller the opening the harder the heart has to push to get blood through. When a person's heart has to pump very hard, she/he has high blood pressure.

How can you tell if someone has strangled blood vessels? You can't. But we know that some people are more likely to have clogged vessels than others. If a person has high blood pressure, smokes cigarettes, is obese, or has high amounts of cholesterol in their blood, that person is more likely to have a heart attack or stroke than people who do not have any of these **risk factors.**

Activity 1 — Which would you rather eat?

Read the following two lists of ingredients taken from the labels of two food products sold in the supermarket. Which would you rather eat? Why?

Whole dressed turkey, water, bacon, seasoning (salt and onion powder), and vitamins and minerals (potassium chloride, iron oxide, vitamin E supplement, vitamin A supplement, thiamine, niacin, manganese sulfate, copper oxide, cobalt carbonate, potassium iodide, riboflavin, vitamin D supplement)
Water, hydrogenated coconut and palm kernel oils, sugar, vanilla, sodium caseinate, dextrose, polysorbate 60, sorbitan monostearate, carrageenan, guar gum, artificial color and flavor.

After everyone in the class has made their choice, your teacher will tell you what products A and B are. Are you surprised?

Food from a factory and not from a farm

More and more foods we buy today are processed and fewer and fewer are raw, fresh and not tampered with. What is processing?

Processing is doing anything to the food to change it from its natural form.

Foods lose something during processing. Processed foods may also slowly lose nutrient value as they sit on the shelf for a long time.

Examples of food processing

PROCESS	FOOD TYPE	HOW	REASON	RESULTS
canning	vegetables, fruit	boil at high pressure and high temp.	preservation	long shelf life: also nutrients lost, fiber breakdown, often higher salt or sugar
dehydration	powdered eggs, instant soup	water removed turned into powder or flakes	preservation	long-shelf life year-round production convenience in preparation taste impaired laced with additives
frying	potato chips	oils or fats	innovation appeal	saturated fat added more expensive per pound higher calories vitamin C destroyed
refined grain products	white flour	milling to remove wheat germ and bran, sometimes bleached	preservation appeal	long shelf life smooth texture fiber lost B vitamins, vitamin E, and trace minerals lost
enrichment	grain products - bread and pasta	add back a few of nutrients lost in refining	keep food from being entirely worthless very cheap to do	prevent gross vitamin B deficiencies advertising ploy
fortification	iron in bread vitamin D in milk iodine in table salt	additives	government guidelines because deficiencies historically common low cost	less anemia, rickets, or goiter causes reliance on "artificial" sources sales gimmick

PROCESS	FOOD TYPE	HOW	REASON	RESULTS
dough conditioners	bread	chemicals ensure easier kneading and rising	uniform texture appeal	bread bubble-free and squeezably soft
caramel color	whole grain and egg breads	additive	suggest that more whole grain or egg used than actually was	deceptive avoids use of expensive ingredients
skimming	milk and cheese	cream removed	consumer demand	lower calories lower saturated fats and cholesterol vitamin A lost cream used elsewhere
emulsifiers	salad dressings ice cream	additives (similar to soap) added to keep oils from separating from mixture - mono and diglycerides, polysorbate	appearance	no need to shake salad dressing aids in freezing ice cream
thickeners	sauces MacDonald shakes	starch and cellulose derivatives agars and gums	stabilize mixture imitate homemade appearance cost effective	good mouth feel substitute for natural ingredients
flavor additives	Bar-B-Q flavored chips soda pops and drinks	natural and artificial	improve taste mask flavor of synthetic food or flavor lost in processing	many foods salty or sweet consumer unused to natural taste additives not listed individually on label
color additives	mint jelly - green butterscotch pudding - orange marashino cherries - red ham - pink	natural sources and coal tar derivatives	improved appearance mimic natural food	consumer expects colorful food danger of carcinogens and mutagens

You yourself may process food after you bring it home to your kitchen. If you chop an onion you are processing it. If you boil fresh vegetables for a long time and throw away the cooking water, you have discarded many of the important vitamins just as the food industry might have in their processing plant. You can learn to be careful in how you prepare your food. You can buy fresh, wholesome foods or you can buy highly processed foods. The food industry would like to be able to sell more and more of your food in a processed form. Here are some of their reasons for processing food:

Preservatives (such as sodium propionate in bread) are added to processed foods or to the packaging to make foods last longer. Spoiled and rotten food can be a serious loss of money to the food industry. Processing allows them to ship foods long distances from one main growing area (such as California) or from one large centralized processing plant to any other part of the country or the world. Processed foods have long shelf lives of months or years instead of only days; this is an advantage both in warehouses and supermarkets as well as on the kitchen shelves of the purchaser. Processing permits the economic and efficient practice of large-scale food industries selling a food year-round instead of only at harvest season.

Many so-called **convenience foods** have been processed so as to require less effort and time in the kitchen preparation or so as to be sold at fast-food restaurants. Convenience foods are always more expensive than their unprocessed counterparts but the food industry says that the additional price is fair because they are supplying "maid service". The question really is: do people *want* and *need* convenience foods for the fast pace of modern life or has the availability of convenience foods itself helped to change our cooking and living habits?

A part of the high cost of convenience foods comes from the advertising on the brightly colored food packages — do we need this?

Keep it up, kid — there's more where that came from!

Activity 2 — What happened to the potato?

Let us look at one food which has become subject to more and more processing: the common potato. The following table of different potato products gives their price and their package size.

Calculate for each one the *price per pound* (remember that there are 16 ounces in one pound.)

Increased Processing ↓

potato product	package price and size	price per pound
fresh potatoes	$1.29 for 10 pounds	
fresh potatoes (Idaho baking)	$1.19 for 5 pounds	
sliced canned potatoes	71¢ for 39 ounces	
frozen French fries	31¢ for 9 ounces	
frozen potato puffs (Orelda Tater Tots)	$1.09 for 32 ounces	
instant mashed potatoes	$1.29 for 26.7 ounces	
potato sticks	87¢ for 7 ounces	
potato chips	89¢ for 7.5 ounces	
potato chips in snack packs	85¢ for 4 ounces	
au gratin potatoes (dried)	81¢ for 5.5 ounces	
hamburger helper (for potato stroganoff)	87¢ for 7 ounces	
Munchos	79¢ for 5 ounces	
Pringles	$1.19 for 9 ounces	

What happened to the price of potatoes per pound as they have become more processed.

Why do you think that Proctor and Gamble invented Pringles and spent $15,000,000 the first year to advertise its introduction? P & G says that the consumer was unhappy with crumbled potato chips and bulky packages and they just recognized a consumer need. Were you one of the American consumers who worried about broken potato chips?

The Pringles chip is made by reconstituting dehydrated potato mash into a precisely stacked mold. The chips are stacked neatly into a tennis ball can and then shipped across country. This has allowed P& G to compete against local chip makers, and P & G can use its enormous finances for national advertising ($7.8 million spent in 1977 alone to advertise Pringles). It also has allowed a shelf life of at least a *year* without tasting stale. The product is highly profitable.

Eat a Pringles chip bottom down. Next eat another Pringles chip top down. Do you taste a difference? You should. (See below.)

"Taste" has been reinjected on only one side during the processing.

UNIT II
SECTION 6

What Are They Putting in my Food?

Activity 1 — It takes longer to read than to eat!

Bring in food labels from home.

1. What foods have the longest ingredient lists?
2. For each food, what is the main ingredient (listed first)?
3. What are the additives?
4. Find out what each additive does and if it is safe by doing some quick research in *Eater's Digest* by Michael Jacobson.

Chemical additives

Additives may not only be *intentional* — put there on purpose by a food company — but some are *incidental* — they got into the food by "accident". Examples of incidental additives are:

—DES (diethylstilbesterol) — a **synthetic** sex hormone to make cattle and chickens grow fatter faster

—PCBs (polychlorinated biphenyls) — cooling agents from electrical transformers

—aflatoxins (natural poisons from molds on peanuts, etc)

—insecticide residues such as DDT

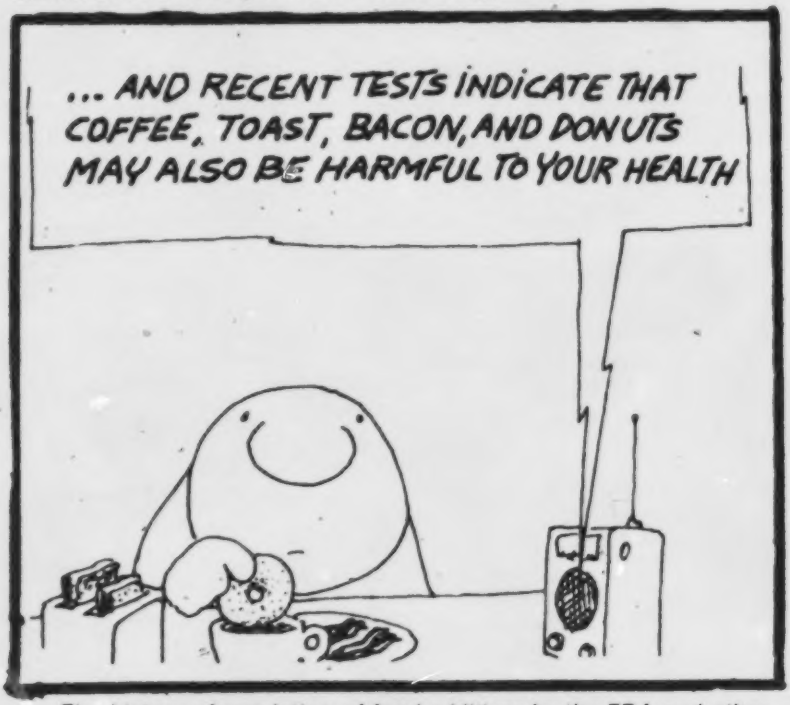
—insect fragments and other filth

The U.S. Food and Drug Administration (FDA) is responsible for regulating all food additives and ensuring the safety of our food. Some additives are now banned, especially some of the *artificial colors* derived from *coal tars*, such as Red Dye # 2. If you've ever eaten maraschino cherries, then you also ate Red Dye # 2. Others are listed as **GRAS** — Generally Recognized as Safe.

Often the food industry and consumer advocates may disagree as to what should be GRAS. Does the food industry have the same interest as the consumer in supporting the ban of additives? Industry helps pay for tests which are expensive and time-consuming. But remember: tests done on healthy animals one additive at a time show nothing about the interactions of several additives or the effects on especially susceptible individuals.

Some chemicals can be added to foods only ***below*** a certain **tolerance** level because they are **toxic** (poisonous) at high levels. Other additives cannot be in the food at *any* level because they are **carcinogens**. Carcinogens cause cancer and only a small amount may be necessary to start the growth of a few cancerous cells in your body. Carcinogens do not make you sick right away; they are a "slow poison". It may take up to 20-30 years after exposure for cancer to show up in a human being.

In 1958 Congressman Delaney (whose wife died of cancer), pushed for the approval of an amendment to the Food, Drug, and Cosmetics Act which bans the use of any chemical in food in any amount if it has been shown to be carcinogenic in people or in animals. The food industry has made frequent energetic efforts to get the Delaney Clause repealed and especially lobbied Congress after the FDA tried to remove saccharin from all foods in 1977. The food industry argues that the Delaney clause is too strict and would even exclude natural toxins. Should we be prohibited from eating peanuts?



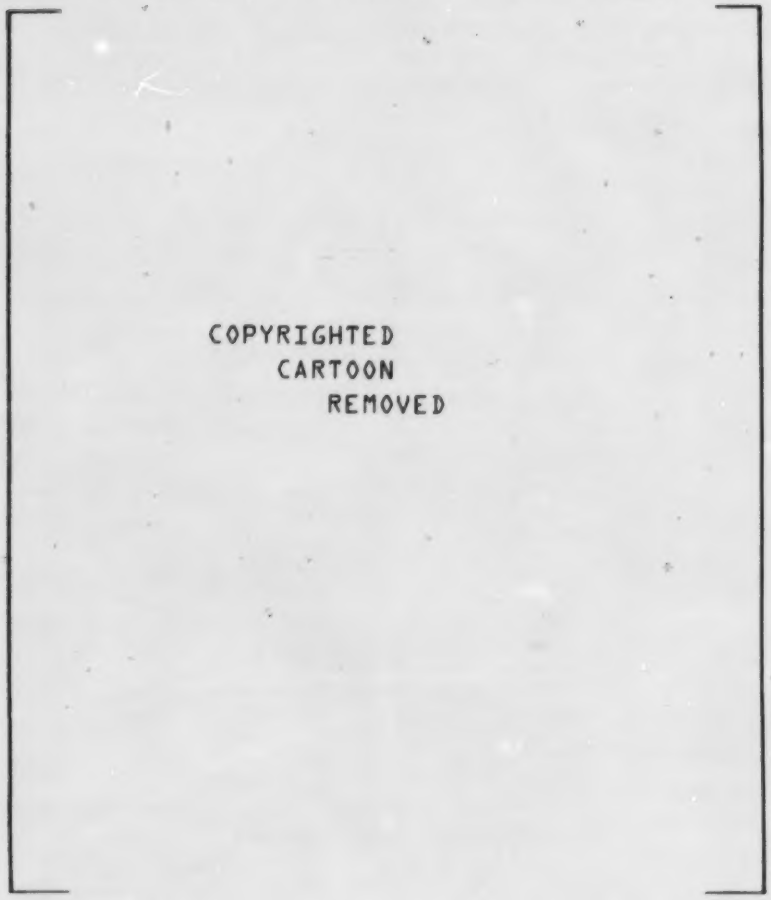
The history of regulation of food additives by the FDA and other governmental agencies has not been encouraging. Foot dragging by the FDA has delayed for years the banning of additives once thought of as GRAS. For example, it took more than 15 years to ban Red Dye # 2 after it was blamed for birth damages in animals. This was a case of heavy industry pressure to retain one of their most widely used "U.S. Certified Colorings" almost winning out over public pressure.

It took great consumer uproar to override the FDA inaction to get the baby food industry to finally remove in 1969 the flavor enhancer MSG (monosodium glutamate) from their baby foods. MSG was in baby foods mainly to satisfy the parents' taste buds but research showed that it may be hazardous to the baby's brain development. The FDA has yet to act on MSG and it still remains on the GRAS list.

The fight over the artificial sweetener **saccharin** is still raging today and articles about this issue appear frequently in newspapers and magazines. The debate over saccharin centers on the possible ***risk*** of cancer of the bladder vs. the supposed ***benefits*** to diabetics and obese people who want sugar-free sweetners.

Also in the news today is the chemical **sodium nitrate** which is added to cured meats: hot dogs, ham, bologna. Since meat is under the jurisdiction of the U.S. Department of Agriculture, it is the U.S.D.A. who must decide if the cancer *risk* of nitrates outweighs the ***benefits***. Nitrates prevent food poisoning from **botulism**. Weighing risks against benefits is often a part of the debate over whether to ban an additive. additive.

The banning of nitrates by the U.S.D.A. has been delayed again and again by postponements and **stays of execution**. Why don't federal agencies like the FDA and USDA act quickly to protect us from food additives shown by research to give risks of cancer, or birth defects? Part of the answer for the footdragging comes from the close ties of the government's regulatory agencies with the industries they are supposed to regulate. Many of the people who run the FDA and USDA were once employees of the food, cosmetics and chemicals industries and many of the people who leave the government find desirable jobs waiting for them in these industries. This has been called the "revolving door" policy. Officials of the FDA and USDA who have hesitated, postponed and delayed regulatory decisions have often been assured of a good job in a few years — sort of a "deferred bribe".



Activity 2 — Synthetic foods

More of the foods products sold in the stores are entirely synthetic, products of a food chemist's imagination, rather than of a chicken or a tree. Some foods are being developed from **petrochemicals** or from **torula yeast** which can be grown on petrochemicals. There is now fake chocolate and fake tomato flavor — both cheaper for the manufacturer and more profitable to use than the real thing.

Can you guess what each of the following food products is?

Do you agree with other people in your class? Give it a try!

A. water, syrup, shortening, sugar, whey solids, food starch modified, dextrose, sodium caseinate, flavoring gelatin, whole milk solids, monosodium and diglycerides, salt, vinegar, polysorbate No. 60, vanilla, monosodium phosphate, guar gum, lecithin, artificial color in a crust of wheat flour, sugar, shortening, water, dextrose, graham flour, sorghum grain flour, salt, sodium bicarbonate, ammonium bicarbonate, artificial flavoring and coloring.

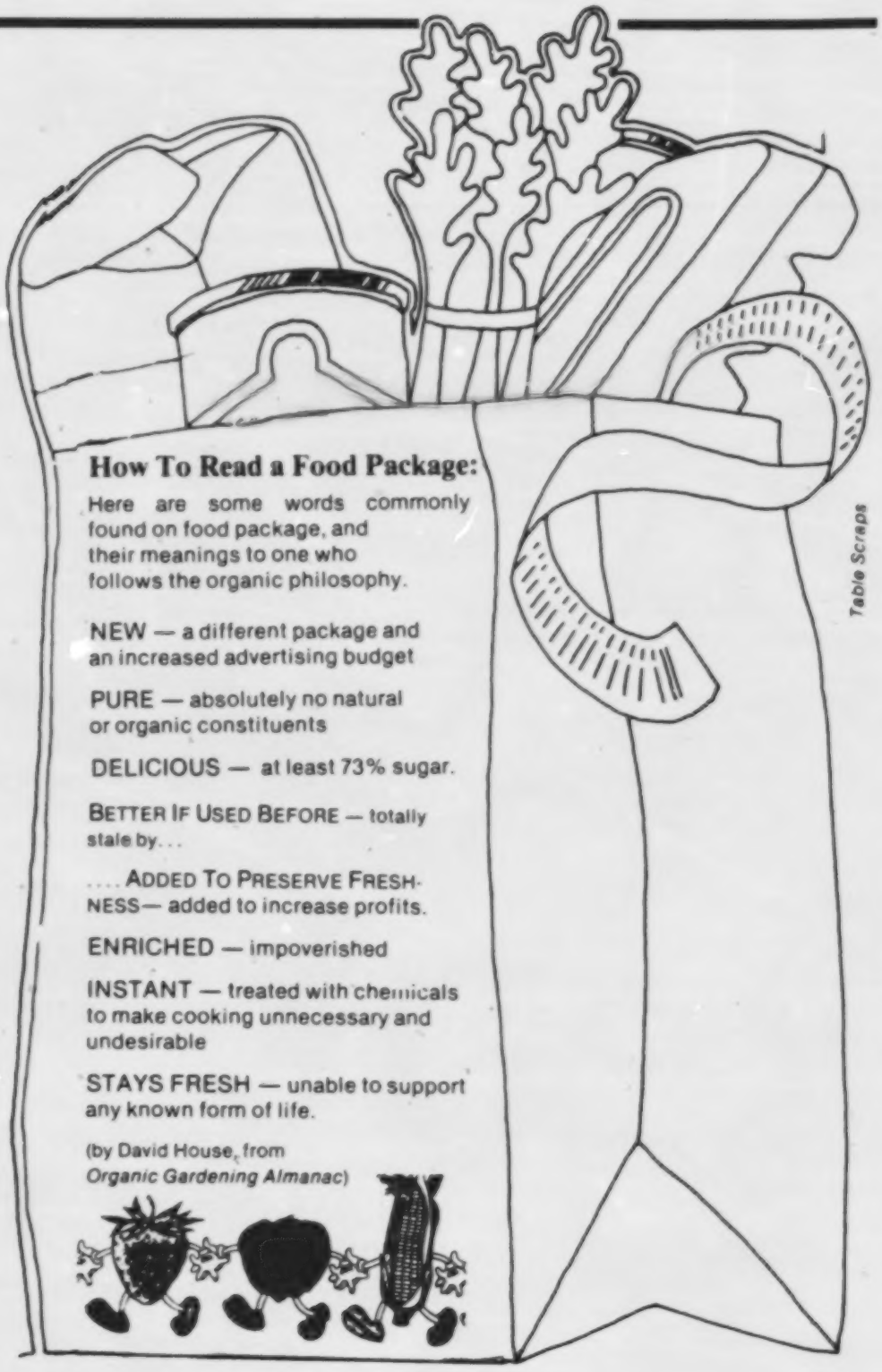
Tom Chalkley Nutrition Action

B. water, sugar, nonfat dry milk, whey solids with calcium hydroxide and disodium phosphate, modified tapioca starch, hydrogenated vegetable oil, cocoa processed with alkali, emulsifiers (sodium stearoyl-2-lactylate, polysorbate 60, and sorbitan monostearate), artificial color and flavor, sodium caseinate, salt, dextrose, carraggenan, guar gum.

C. sugar, citric acid, malto-dextrin, calcium phosphate, potassium citrate, natural orange flavors, ascorbic acid (vitamin C), artificial flavor, cellulose and xanthum gums, artificial colors, vitamin A, and BHA and alpha-d-tocopherol.

You may want to look up some of the ingredients in Michael Jacobsen's *Eater's Digest* to see what their purpose is.

Your teacher will give you the real name of the food when you are done. What is your reaction?



How To Read a Food Package:

Here are some words commonly found on food package, and their meanings to one who follows the organic philosophy.

NEW — a different package and an increased advertising budget

PURE — absolutely no natural or organic constituents

DELICIOUS — at least 73% sugar.

BETTER IF USED BEFORE — totally stale by...

....ADDED TO PRESERVE FRESHNESS— added to increase profits.

ENRICHED — impoverished

INSTANT — treated with chemicals to make cooking unnecessary and undesirable

STAYS FRESH — unable to support any known form of life.

(by David House, from *Organic Gardening Almanac*)

Table Scraps

UNIT III

Nutritional-Industrial Complex

Nick Thorkelson

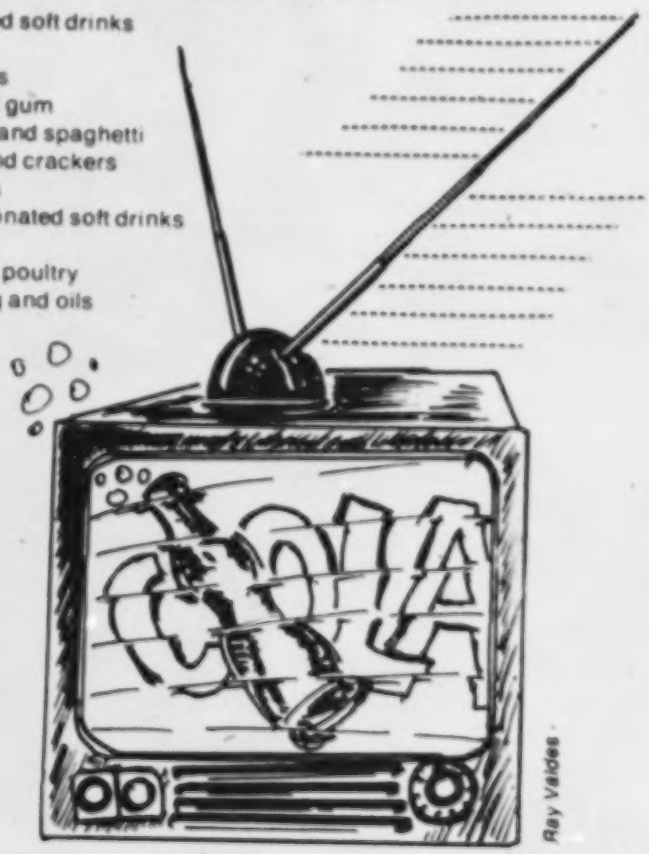
UNIT III
SECTION 1

Tastes Like Love

Activity 1 — Junk food derby

Below are listed twelve (12) foods. On the television antenna rank the foods from the one you think is *most* advertised at the top, to the one you think is *least* advertised at the bottom. Discuss your guesses and how they compare with the actual answers.

carbonated soft drinks
desserts
citrus fruits
candy and gum
macaroni and spaghetti
cookies and crackers
vegetables
non-carbonated soft drinks
cheese
meats and poultry
shortening and oils
cereals



Ray Valdes

Is the order of foods advertised from most to least often similar to your own food preferences (yes/no)?

Today, the average diet contains an excess of both sugar and fat, two nutrients in the greatest quantity of those foods most often advertised. Sugar and fat also contribute to modern health problems such as dental caries (cavities), obesity and heart disease. If your food preferences are similar to the majority of American adolescents, you eat over 100 pounds of sugar a year and 30% more fat than a teenager ate in 1910. Both these nutrients are important parts of a healthy diet but are only necessary in much smaller quantity. What else besides advertising do you think influences people's preferences for less than healthy diets?

ANSWERS

most advertised
1. *cereals*
2. *candy & gum*
3. *shortening & oils*
4. *cookies & crackers*
5. *desserts*
6. *non-carbonated soft drinks*
7. *carbonated soft drinks*
8. *meats & poultry*
9. *macaroni & spaghetti*
10. *vegetables*
11. *citrus fruits*
12. *cheese*
least advertised

Below, list four other influences that affect your food choices besides TV advertising.

Rank order them in the order that they influence your food choices. Discuss your list with the group and together decide on the most influential pressure on your diet.

Food influences

1.
2.
3.
4.

Activity 2 —

For the 12 advertised foods listed in the activity, decide on the order in terms of the *most healthy* to the *least healthy*. Are healthy foods advertised more or less than less healthy foods?

Activity 3 —

Watch two hours of "kid-vid" TV on Saturday morning and record all commercials. Sort the food commercials into the 12 categories listed above.

1. What image are you sold associated with the product?
2. What nutritional quality information are you given?

Watch two hours of prime-time TV, and repeat the observation of the commercials.

Discuss the audience reached in each time slot and compare the techniques used. Are more food products advertised to children or to adults?

Activity 4 —

Write alternative ads for foods that are good for you. Decide what appeals to the consumer and what qualities of the food product you want to sell. Try them out on your class.

Activity 5 —

Rewrite common TV ads to reflect what is really being sold. Sugary cereals do not make you stronger or better liked; tell it like it is

Nutrition Action

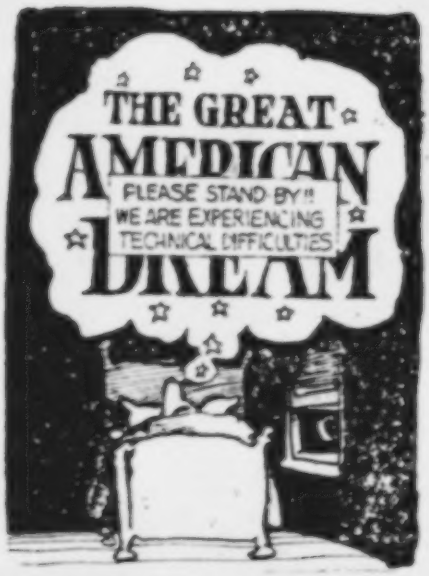
UNIT III
SECTION 2

Survival of the Fattest

Bigger and bigger and bigger

You have heard many times that sugar is bad for your teeth and that too much sugar can make you fat which is a stress on your heart. There are also some important lessons to be learned from how the sugar arrives in the sugar bowl on your kitchen table. It is likely that the sugar comes from the Dominican Republic (an island in the Caribbean). Gulf and Western brings it to you under the Domino-Amstar label. Gulf and Western is called a **multinational conglomerate**. In the Dominican Republic (D.R.), Gulf and Western is called *El Pulpo* or The Octopus.

When Gulf and Western was first founded they did not grow or refine sugar. Twenty years ago Gulf and Western was a one-line automotive parts business — Michigan Bumper. Then it started to invest its profits and to grow. Now it offers more than 850 types of products and services, most of which have nothing to do with autos. This **diversification** doesn't mean that Gulf and Western created new products. It became a diversified conglomerate by buying up pre-existing smaller companies which made different unrelated products. There is security in diversity; losses in one **subsidiary** can be made up by profits from another.



A Working Economy for Americans/cpf

Gulf and Western operates in all 50 states and in 50 foreign countries including the D.R. Because of this it is called **multinational**. Many conglomerates nowadays are multinational. They mine, harvest, manufacture and sell in several different countries. Multinationals usually locate their manufacturing and harvesting operations in countries where people will work for the lowest wages. Because they do not belong to any one country, multinationals are a law onto themselves and they do not pay taxes.

Besides sugar, what else does Gulf and Western own? Gulf and Western is truly a conglomerate. It owns:

Paramount Pictures (*Godfather I* and *II*, *Airplane*, *Urban Cowboy*; TV series *Happy Days*)
Consolidated Cigars (El Producto, Muriel, Dutch Masters)
Schrafft's candies
Simon and Schuster (book publisher)
Madison Square Garden (with New York Rangers and Knicks)
New Jersey Zinc
Kayser-Roth (Catalina swim suits, Supp-Hose, Mojud stockings, and the Miss Universe pageant)
finance and insurance services
cement and building products

El Pulpo

Twenty-five per cent of Gulf and Western's income now comes from raw sugar. They came into the Dominican Republic in 1966 by buying out the South Puerto Rico Sugar Company. This was shortly after the U.S. Marines helped set up a government in the Dominican Republic friendly to the U.S. The Dominican Republic government

welcomes Gulf and Western as an important source of foreign earning but these foreign earnings have not meant food for the people there. Over half of the children of the poor farmers die of malnutrition before they are five. Cane cutters are paid about $1.50 *a day* to cut a ton of sugar cane. Gulf and Western has destroyed the labor unions and despite high unemployment in the Dominican Republic brings in laborers from Haiti willing to work for low wages.

Even though the economy of the Dominican Republic is crippled by Gulf and Western's influence they seem locked into the sugar crop. Gulf and Western owns or controls much of the Dominican Republic's best farmable land. This land is used to grow sugar and beef for **export** instead of the nutritional food the people lack. Gulf and Western has reinvested money in the Dominican Republic, largely in tourist hotels, cattle ranches and sports arenas. Gulf and Western owns a tax-free industrial zone near their large sugar mill at La Romana, D.R. to which they attract foreign investors by advertisements of unlimited cheap labor.

Of course Gulf and Western is not responsible for all the problems of the Dominican Republic. They even boast in their annual report of their social responsibility through job training, a drinking water aqueduct and an agricultural school they have paid for in the Dominican Republic. But their charitable image aside, Gulf and Western contributes to human suffering as they try to maximize the profits of their sugar enterprises. The profits of multinational conglomerates do not take into account the human costs. The fact that Gulf and Western has much greater power than the government of the Dominican Republic means that a quick and easy solution is unlikely.

The power and size of multinational conglomerates is hard to understand but the following supermarket-visiting activities may help.

Activity 1 — Whose grandmother made this jar of pickles?

Look for each of the food-products in the following list in the supermarket (a few of them may not be available in all parts of the country). Find out what conglomerate owns which food. HINT: Look for words on packages and labels like "subsidiary of", "division of" or "product of".

Dannon Yogurt	Canada Dry
Tropicana orange juice	Orville Redenbacher Gourmet Popcorn
Clark candy bars	Hostess Twinkies
Sunbeam bread	Morton Frozen pies
La Choy Chinese food	Wonder Bread
Swiss Miss cocoa mix	Fresh Horizons Bread
Schweppes	Sara Lee frozen cakes
Royal Crown cola	Franco-American canned spaghetti

V-8

Swanson Frozen Foods

Star-Kist tuna

Ore-Ida frozen potatoes (F.F.)

Dromedary dates

Campfire marshmallows

ReaLemon reconstituted lemon juice

Sacramento tomato juice

Wise potato chips

Drake's cakes and snacks

Cracker Jacks

Wyler drink mixes

Reeses peanut butter candy cups

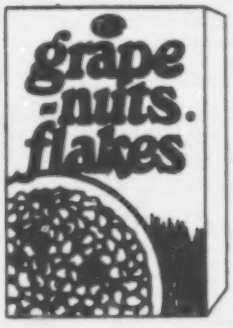
Snow's seafood products

Kava Instant coffee

Sanka, Maxwell House, Postum

Minute rice and Minute tapioca

Post grape-nuts



Tang

Jell-O

Shake 'n Bake

Gaines Pet Foods

Good Seasons Salad Dressing

Log Cabin Syrup

Country Time lemonade

Kool-Aid

BIRDS EYE

Bird's Eye

Minute Maid orange juice

Hi-C

Pringles reconstituted chips

Folger coffee

Crisco oil

Duncan Hines cake mixes

Jif peanut butter

Crest toothpaste

Cheer, Duz, Tide, Ivory Snow, Dash, Bold, and Downy

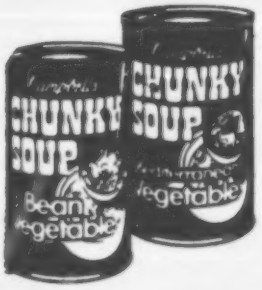
Luv and Pampers

Planters peanuts

Royal instant pudding

Sun Maid raisins

Fleischmann's margarine



Campbell's

Tender Leaf tea

Baby Ruth candy

Aunt Jemima pancake mix and frozen waffles

Durkee spices and seasonings

Coffee-mate non-dairy creamer

Mazola Oil

Betty Crocker

Skippy peanut butter

Peter Pan

Chun King Chinese foods

Hawaiian Punch

Del Monte

Discussion questions:

1. Which brand names are deceptive in suggesting that the product is made by a small company? What is the appeal of certain homey names like "Grandma's" or "Italian style"? What about **ethnic** names? Is this **deceptive** advertising?

2. What are some of the names of conglomerates which are very common?

3. Some conglomerates do not tell you on package labels that they own smaller producers. For example, Pepsi-Co owns Frito-Lay but this is not mentioned on packages of Doritos or Ruffles. Or Nestle owns Libby canned foods and Stouffer frozen dinners but the name Nestle does not appear on the package. Discuss whether this is information you want as a consumer and why.

4. Some food companies are owned by non-food conglomerates (Armour meats is owned by Greyhound, Durkee by Smith Corona, Chun King by Reynolds). Some food conglomerates are investing in non-food companies. For example, Pepsi-Co owns North American Van Lines and Wilson tennis and golf equipment; Beatrice Foods owns Samsonite luggage and Morgan Yacht. What advantages are there for a conglomerate to have **diversity**?
What disadvantages are there for you as a consumer?

5. What do your findings in this activity suggest about **free enterprise** and **competition**?

COPYRIGHTED CARTOON REMOVED

Activity 2 — Good to the last drop

One way agribusiness conglomerates make more money is by **product differentiation**. This means that their advertising campaign convinces you that their brand name product is different from (and better than) essentially equivalent products. The actual difference may only be in the color of their package.

1. Find each of the following brand name products in the supermarket and compare its price per ounce with that of the comparable store brand and with whatever other brands are on the shelf near it. Write down the contents of the food as listed on the packages.

Wesson oil
Del Monte canned peaches
Campbell's chicken noodle soup
Heinz catsup
Heinz mayonnaise
Canada Dry ginger ale
Minute Maid orange juice
Maxwell House coffee
Starkist Tuna
Duncan Hines cake mix
Sara Lee frozen cakes

2. Pick one product like canned peaches or cereals or vegetable oil. Go to that section of the supermarket. Note which brand name of that product is at eye level. Which are displayed near the floor or on the top shelf? What products are at the level of a child in a pushcart? Which are given the widest area on the shelf? You may draw a diagram of a shelf display if you find that easier to illustrate your answer.

3. In class do a taste comparison of foods which are similar or identical. Do the more expensive nationally-advertised brands taste different or better than their less famous equivalents?

Discussion questions:

Why are some brand names more expensive?

Why might people buy the more expensive brand name products?

Are you paying more for less because of the difference in product size? (Be sure to check how many ounces of product weight each price is for.)

...and they forgot the land.

"And it came about that owners no longer worked on their farms. They farmed on paper: and they forgot the land, the smell, the feel of it, and remembered only that they owned it, remembered only what they gained and lost by it. And some of the farms grew so large that one man could not even conceive of them any more, so large that it took batteries of bookkeepers to keep track of interest and gain and loss; chemists to test the soil, to replenish; straw bosses to see that the stooping men were moving along the rows as swiftly as the material of their bodies could stand. Then such a farmer really became a storekeeper, and kept a store. He paid the men, and sold them food, and took the money back. And after a while he did not pay the men at all, and saved bookkeeping. These farms gave food on credit. A man might work and feed himself and when the work was done, might find that he owed money to the company. And the owners not only did not work the farms any more, many of them had never seen the farms they owned."

Source: John Steinbeck, Grapes of Wrath

UNIT III
SECTION 3

Harvest of Shame

Cutting cane in Florida

Roberto left his family in Jamaica to come to Florida to harvest sugar cane on a small farm. Like 25% of Jamaicans he was jobless. Lacking access to welfare or social security programs, he had little choice but to become a migrant worker. Every morning at 6:00 Roberto climbs into the truck to go to the field. The truck is overcrowded with standing men and the cane cutting knives are out in the open. Roberto tries to stay away from those knives since he knows sometimes that the heavy truck goes off the side of the road and workers get hurt. Roberto arrives in the field to wait for the crew leader to assign him a quarter of a mile long row of cane that is his average daily "task". Roberto hurries up knowing that if he doesn't harvest at least a ton each hour he will be sent home to Jamaica. It is 6:45 in the morning, the crew leader finishes assigning rows, opens his notebook and puts in front of Roberto's name: "starting time, 6:45." The cane is 12 to 14 feet high and very thick. Roberto uses a sharp knife to cut stalks. To protect himself he wears awkward metal guards for his feet, shins and hands like medieval armor, and long sleeves and a hat to protect himself from sticky cane fibers. He sees a dangerous snake and wants to strike at it with his knife; fortunately he stops, remembering that the grower prohibits killing snakes because they eat rats.

Roberto has problems breathing. Ashes are surrounding him because the field is first burned to remove leaves before the workers harvest it. It is 12:00, lunch time. To be able to earn more Roberto eats in a hurry. The crew leader marks half an hour lunch in front of Roberto's name. The sun is high now and Roberto is hotter and hotter in his heavy clothes. He tries to work fast but carefully. He knows that he won't get hospitalized if he cuts off one of his toes or fingers even though 3% of his wages are given to a "medical insurance." His hourly wage is $3.23. An American worker would demand $5 an hour for this kind of job.

It is almost 8:30 at night and it is becoming dark as Roberto finishes his row. He is dead tired. He goes back to his quarters, a tiny room for ten workers. They lie down in bed and talk. They are deciding whether to go on strike for better working conditions. Some of the men are scared to be sent home.

LNS/cpl

This is the **contract** under which they are working:

— the contract is signed between the Jamaican government and Florida sugar growers. There is no contract between worker and grower.
— any act of misconduct or disobedience and the worker is deported to Jamaica at his own expense
— Federal minimum wage laws cover only the largest farms (and these laws usually are not enforced)
— workers should not be forced to work more than 8 hours a day, six days a week
— housing should be free
— the price of meals is deducted from the worker's wages
— the grower should supply the same medical care and compensation for work-related injuries and diseases that are required for American workers by state law.

Role play: Some students will play the part of Jamaican migrant workers and some students will play the part of the Florida growers as they confront each other the next morning. One student will play the part of the local judge who is a brother-in-law of the main sugar grower.

Rini Templeton, NACLA

Canned imperialism

The Bajio Valley is one of Mexico's richest agricultural valleys. Del Monte became interested in the region because the labor is so much cheaper than in the United States. When Del Monte first sent its technicians to Bajio in 1959, they found a fertile land with corn and bean production predominating and serving as the basis for the local diet. Some of the land was owned by Mexican **campesinos** each caring for 10 to 20 acres. Some of the land was held in **ejidos** (large State-owned farms) subdivided into small plots, worked by **ejidatarios** (tenant farmers). Mexican law prohibited the sale of these lands and restricted its ownership by foreign corporations.

Nevertheless, Del Monte found a way to change the valley's agriculture. Because agricultural **credit** is very limited in Mexico, Del Monte introduced **contract** farming. Contract farming means that in order to have credit the farmer agrees to plant a set number of acres of a particular crop. The company provides seeds, machines and fertilizer. The costs of these are deducted from the farmer's income when he delivers the crop to the company's cannery.

In the early 1960's Del Monte came to dominate the valley. Del Monte prefered to deal with large owners while the ejidatarios were increasingly **marginalized** and often forced out of production. Many have been forced to leave their villages in search of work and many migrate illegally to the United States. The large grower who already had money or land could enter new areas of production by using contract farming to increase his wealth. However they were *all* dependent on Del Monte. If a machine arrived late and the farmer lost his crop, he wouldn't receive any money and would even go into debt.

Instead of the traditional corn and beans, now peas and asparagus are extensively grown and canned in Bajio Valley for **export**. These are not part of the diet of the Mexican people. Canned peas are purchased only by middle and **upper class** Mexicans. 90% of the asparagus is shipped to industrialized countries. No longer do the people grow food for their own consumption. Their wages are too low to buy enough food. Without the **complementary protein** provided by meals like tortilla and frijoles (beans), malnutrition is increasing in Mexico. The Mexicans are becoming even poorer.

Rini Templeton

Discussion questions:

1. Del Monte was able to get what they wanted produced in Mexico because they could provide credit. Why do farmers need credit? When do farmers need credit most? For what?

2. Investment by American firms is usually seen as beneficial because money is provided to buy new technology which helps increase production. Let's look at this case of investment by examining the following:

(a) what kind of food production was *increased* by Del Monte's investment?

(b) what kind of food production was *decreased* by their investment?

(c) name the technologies that were made available because of Del Monte's investment.

(d) what happened to the *large* land owners as a result of the investment?

(e) what happened to the *small* land owners as a result of the investment?

(f) what happened to the *workers* as a result?

(g) summarize the effects of this investment on production and on people.

Rini Templeton, NACLA

Plane Wreck Over Los Gatos Canyon (Deportee)

The crops are all in; the peaches are rotting,
The oranges are stacked in their creosote dumps.
They're flying them back to that Mexico border,
To pay all their wages, to wade back again.

Chorus: Good-bye to you Juan, good-bye Rosalita,
Adios mi amigo, Jesus San Maria.
You won't have a name when you ride the big airplane,
And all they will call you will be — deportee.

My father's own father, he waded that river.
They took all the money he made in his life.
My brothers and sisters come working the fruit trees,
And they rode on the trucks 'til they took down and died.
(Chorus)

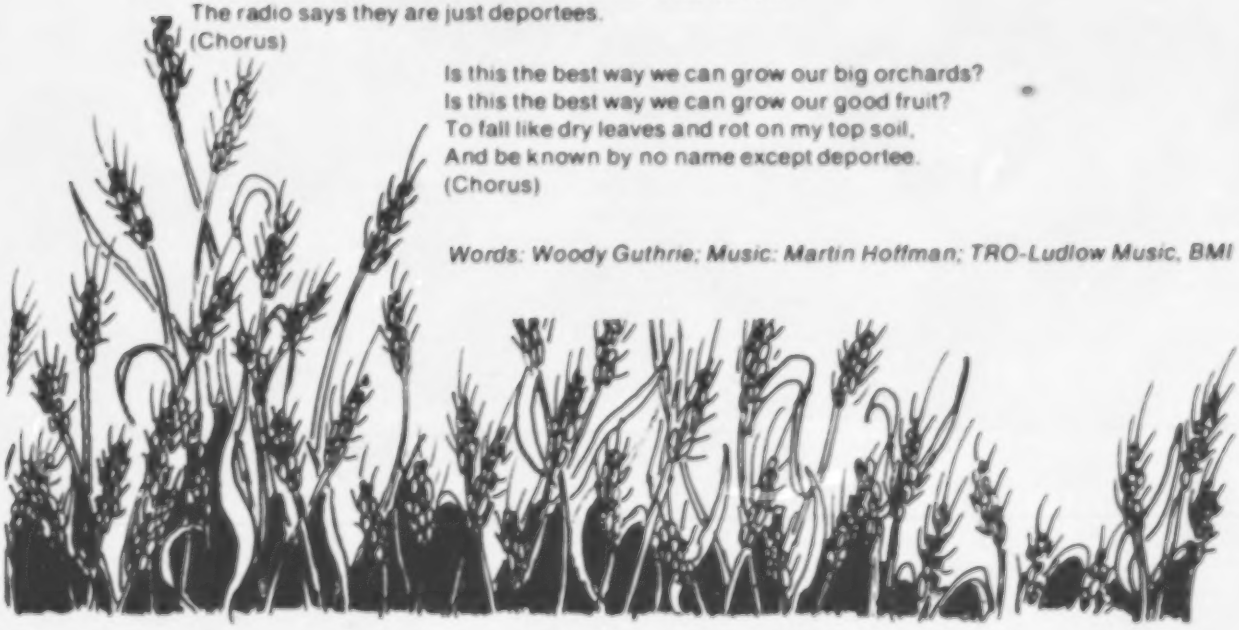
Well, some are illegal and others not wanted.
Our work contract's out and we've got to move on.
Six hundred miles to the Mexico border,
They chase us like outlaws, like rustlers and thieves.
(Chorus)

We died in your hills and we died on your deserts.
We died in your valleys; we died on your plains.
We died 'neath your trees and we've died in your bushes.
Both sides of that river, we've died just the same.
(Chorus)

The skyplane caught fire over Los Gatos canyon,
Like a fireball of lightning and shook all our hills.
Who are all these friends, all scattered like dried leaves?
The radio says they are just deportees.
(Chorus)

Is this the best way we can grow our big orchards?
Is this the best way we can grow our good fruit?
To fall like dry leaves and rot on my top soil,
And be known by no name except deportee.
(Chorus)

Words: Woody Guthrie; Music: Martin Hoffman; TRO-Ludlow Music, BMI



UNIT III
SECTION 4

Bottle or Breast?

Bottle babies in the U.S.

Drinking milk is something that all of us did when we were babies and little children. Feeding the next generation milk is also something that most of us shall do. We are mammals just like cats, cows, mice, porcupines or whales. Being a mammal means that right after giving birth a mother produces milk to feed her newborn offspring. Nonmammals — animals like birds, fish, or snakes — cannot do this. Some people have also had available, especially during the past fifty years or so, a product manufactured as a substitute for breast milk. This product — infant formula — can be fed to a baby from a bottle. Here is the choice: bottle or breast?

The following are some facts about bottle and breast feeding:

— Breast milk is unprocessed and fresh and **aseptic**.

— Formula is made of cow's milk that has been heated, diluted with water to cut the excessive protein content and sweetened. Both heat and storage are known to destroy many nutrients. We know enough about a few of the **vitamins** to add them to formulas but there are other substances about which we know too little.

— Breastfed babies seem to be protected from serious digestive disorders and have less eczema (skin rash) and respiratory infections. This may be because **colostrum** as well as mature human milk are rich sources of antibodies, enzymes, and other anti-infective factors.

— Bottlefed babies often develop serious allergies to cow's milk.

— Breast milk is inexpensive. All the lactating (milk-producing) mother needs is an extra 500 **calories** and 20 grams added **protein** a day. Bottle feeding is two-three times as expensive.

— Formula needs careful preparation and mixing, clean bottles and a good water supply.

— Anyone (mother, father or day care person) can give a bottle.

— Less than five percent of mothers are unable physically to breastfeed, yet 70%-80% of babies leaving American hospitals are bottle fed.

Most American women do not breastfeed. Why?

To use formula is the modern thing to do; it is the norm in the United States. Profits for sale of formula go to commercial interests so there is a lot of advertising and free samples of formula are given to all new mothers as they leave the hospital. Poor U.S. women who receive aid through the WIC program (Women, Infants, and Children) are encouraged to use free infant formula. There is little encouragement for breastfeeding by medical personnel or experienced friends and relatives and a growing number of nursing women feel they have little choice — few employers make arrangements for nursing mothers.

Discussion questions:

1. List the *advantages* and *disadvantages* of both bottle feeding and breast feeding. When you have a child, which would you consider?

2. An international conference on "Lactating, fertility and working women" held in Italy in July 1977 addressed this proposal: "It is recommended that working women in all countries be afforded a minimum of 3 months maternity leave mainly after the delivery." In China new mothers bring their babies to their workplace and are allowed time to feed. If these were the laws in the United States, do you think that the number of nursing mothers would increase? Why or why not?

3. Ask your mother (or your aunt) how you and your brothers and sisters (or cousins) were fed as infants. Why did they choose the method they did?

4. Do some research in your community and find what is recommended by pediatricians, clinics and maternity hospitals.

cpf/LNS

Bottle babies in other countries

The story is not over yet. How to feed a baby in a Third World or developing nation is a serious question for those families living in poverty. The companies which manufacture infant formulas are marketing their product all around the world, not just in American stores. Such companies are **multinationals**, using sophisticated advertising and promotional techniques to stimulate an artificial demand.

— Formula sales in the Third World are booming.

— Besides give-aways, radio jingles, and billboards which sell the message: "the modern, caring mother bottle feeds her baby", mothercraft personnel (nurses in white uniforms) are hired to increase the sales of infant formula at the same time they provide simple health care.

— Free samples and other generous gifts such as hospital equipment are given to doctors and health workers. The distribution of free infant formula to mothers in hospitals and clinics is all the more effective because of the implied medical endorsement.

— Often the modern hospital-style training of these doctors makes them ill-suited to understand the conditions in which their patients live.

— An epidemic of millions of babies with severe malnutrition and infections is the result of this push by the multinationals to expand their markets.

— Using formulas is a luxury many Third World families cannot afford. For an average Third World worker, purchasing formula for one baby

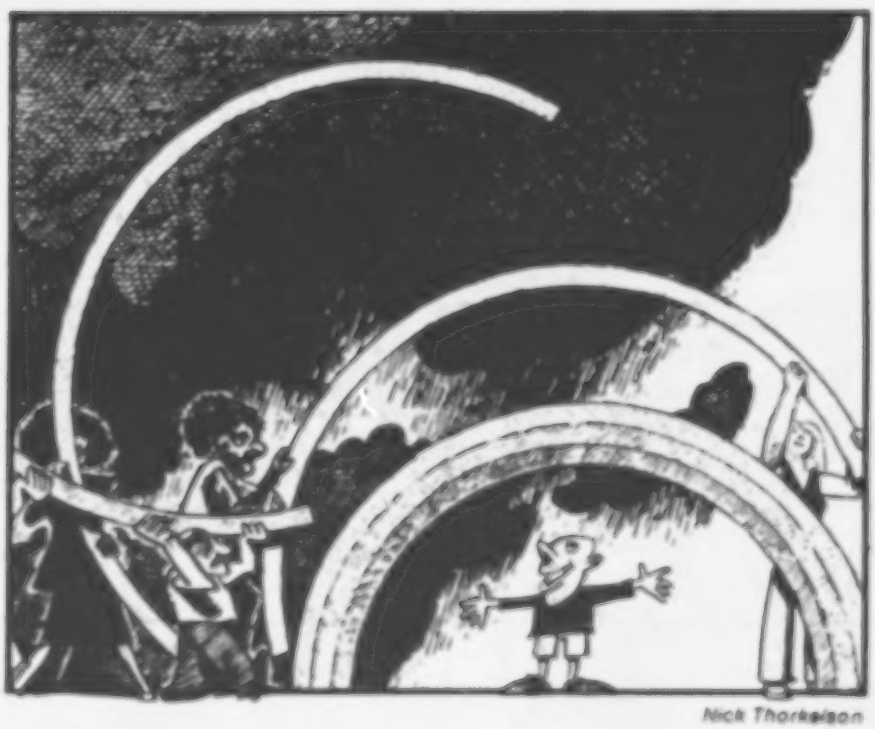
would consume 40-60% of the family's budget. Commonly, formula is overdiluted to ensure that the powder lasts until more can be obtained.
— Contamination of the formula is also common. Without refrigeration, prepared formula is a breeding ground for bacteria. Water sources are often unsanitary, and without sufficient fuel, sterilization of water or bottles is impossible.
— When a new mother uses formula even as a supplement to breast milk, this reduces her milk flow and makes her more and more dependent on purchased products. Using formula shortens the time a woman lactates.
— Instructions for use of formula may be unclear, complicated or in a foreign language. Many mothers cannot read even their native language. And yet Third World mothers want to do the best for their babies and they also want to be modern.

Discussion questions:

1. Why are bottle-fed babies in Third World countries sick and dying?
2. Why do you think Third World mothers choose bottles and formula for their babies?
3. How do these mothers learn about bottle feeding?
4. What are the disadvantages of bottle feeding? Name three.
5. Why do large (multinational) corporations sell infant formula in Third World and developing countries?
6. Is the problem simply that mothers are unable to read and follow directions? Explain.
7. You are a health professional working in a maternity hospital in Africa or Latin America. Large corporations offer you free samples of infant formula to distribute to the new mothers under your care. You are also offered bonuses to help the corporations. What would you do?
8. How can Americans help stop multinationals from exporting bottle feeding to Third World nations or at least help stop marketing to poor families? If the industry does change their marketing techniques, will this solve the problem?

UNIT IV

Building a New World



Nick Thorkelson

UNIT IV
SECTION 1

Introduction to Change

Recall the last time you saw something wrong or something you did not like but you felt unable to change it. You have probably heard many times: "If you cannot make constructive criticisms, keep quiet." In order to avoid feeling discouraged some people will say "I don't care." or "It's not my problem, I can't do anything anyway." Other people feel helpless and say "Better leave decisions to the experts" (or "the government" or "them").

In order to see that changes are quite possible and how you yourselves can make change happen, start right where you are — in school. Discuss in small groups any changes you would like to see happen in school, and report back to the class. Make a chart to help you:

Complaints (3)

Reasons

Activity 1 — Changing school

Changes (9)

1. Make a list of three complaints you have with school and would like to see changed (e.g., I hate having to take history class).

Obstacles (6)

2. Next to each of your three complaints explain why you hate it (e.g., I hate having to take history because it's so boring.)

Plan of action

3. For each of your three complaints make a list of 3 ways you might change the situation. Don't be afraid to suggest the seemingly impossible. Believe that you and your fellow students have the power to change the situation. Even if you think of a solution which has never been tried before, don't be afraid to include it. (e.g., I will get my parents to write a letter; I will tell my teacher how boring the class is; I will run for student president.)

4. For each proposed change, make a list of at least two obstacles to its success. (e.g., I don't know if all students feel like me; The principal won't allow it; These are school rules.)

5. Now that you have a list of proposed changes and a list of obstacles to those changes, decide as a group whether you can *really* make this change. Choose the one change you think is most possible. Circle it on your chart.

6. For the change you feel is most possible, design a step-by-step plan in which you can realistically reach your goal.

Is change possible? Maybe you have decided that some changes are possible and some are not. Perhaps you will want to get a large

COPYRIGHTED CARTOON REMOVED

group of students together to start working on some changes. You may feel that some changes in your school require students to unite with other people outside of the school. Whatever you have learned and whatever you decide to do about change in your school, you can apply your experiences in the previous activity to a discussion of changes which should and could be made in the food you eat.

Most of the lessons and activities you have done in this book so far have shown you what is wrong, unjust, or hurtful about food or the production of food. It can be pretty discouraging to look at hunger, food additives, and powerful profitable corporations if the possibility of change did not exist. There may be changes that you yourself can help make happen.

Again, with the class divided up into smaller groups, do the following activity.

Activity 2 — Changing food

1. From what you have learned about food and nutrition, make a list of three complaints you have about the food you eat (e.g., the macaroni's soggy, the peas are mush and the chicken tastes like wood.)

2. Next to each of your three complaints explain what seems to be wrong (e.g., The supermarket doesn't seem to carry any other kind.)

3. For each of your three complaints make a list of three ways you think the situation could be changed (e.g., I'll grow my own tomatoes; I'll complain to the supermarket manager.)

4. For each proposed change, make a list of at least two obstacles to its success (e.g., I don't have my own garden land; The supermarket is one of a nationwide chain and the manager doesn't make any decisions; Most tomatoes get shipped a long way from California.)

5. Discuss within your group which changes are the most possible. Which changes can be made by you acting as an individual alone? Which changes require changes which are larger than your own personal habits? Come to a group decision as to which change you can *really* make. Don't be afraid of undertaking a "larger" change such as fighting a multinational corporation by participating in a boycott.

6. For the food change you would most like to make, your group should now design a step-by-step plan in which you can realistically reach your goal.

7. Share your problem and the solutions with the rest of the class.

COPYRIGHTED CARTOON REMOVED

UNIT IV
SECTION 2

Choosing What You Chew

Rock Creek Monitor/cpl

You have been learning about problems with the food system and you might be thinking "I'm getting ripped off, but there's nothing I can do about it." Actually there is. In this lesson and in the others in this unit on change we are going to give you some examples of actions other people have taken to change things. We will also make some suggestions of changes that you yourself can make. The purpose of your doing these activities is to learn what changes are possible. It is up to you to decide what you feel is best for yourself.

One way that you can change things is on a personal level. This is a good place to start because only you need to be involved. You can decide to grow a garden. You may want to read more about world hunger and share what you have read with your friends. Other people may feel that their diet is too high in fats, sugar and processed foods, so changes in their diet would be to eat less meat, sugar and salt.

Remember, these are all personal responses to lousy situations. *You* can decide to make personal changes. It's a start toward larger changes.

Isn't it un-American not to eat hamburgers?

Do you know anyone who is a **vegetarian**? Do you know why they decided not to eat meat? Vegetarianism is on the upswing in the U.S. today and vegetarians have many very different reasons for this form of personal change.

In a time when, to quote Dick Gregory, "Food is getting so expensive, it's cheaper to eat money", a meatless diet offers a financial alternative to higher and higher meat prices. Prices of beans and grains have remained far below that of meat products. Availability and the economics of a limited budget have traditionally been the reasons for much of the vegetarianism around the world.

There are also **ethical** reasons for becoming a vegetarian. Many people feel a kinship with animals and refuse to eat the meat of animals. Some do not include fish as an "animal" but others go as far as excluding from their diets any animal products at all: milk, dairy products, or eggs. There are different degrees of vegetarianism.

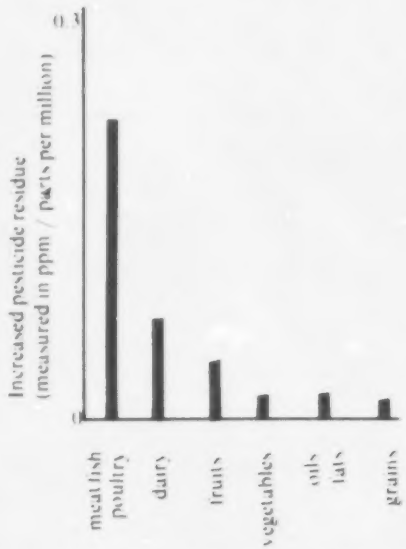
Many vegetarians feel that a meatless diet is healthier and there several points to support this. First, grain-fed beef and pork are among the foods highest in saturated fat. Cholesterol is an animal product and can only enter your diet in the form of meat, whole milk products, or eggs. Second, residues of pesticides such as DDT (now banned in the U.S.) have often been found to be higher in foods of animal origin (higher on the food chain) than in foods of plant origin (see Chart 1). This is because such chemicals tend to accumulate in animal fat. Third, poultry and cattle raised in assembly-line chicken coops and centralized feed lots have had their feed dosed with antibiotics and sometimes with the synthetic hormone **DES**. People are worried about unnecessary intake of antibiotics and it has been shown that DES is **carcinogenic**.

Making a political statement is offered as the reason for choosing

vegetarianism by people who are concerned about doing something to end world hunger. Many of them were inspired by the now classic book *Diet for a Small Planet* (1972) by Frances Moore Lappe. Ms. Lappe shows how meat is a relatively inefficient source of protein (see Chart 2). More than ten pounds of grain or other vegetable protein must be fed to a cow to produce one pound of beef protein. Much of that vegetable protein could better feed the hungry people in the world than going into fattening up animals. To make matters worse, some American multinational corporations send their half-grown cattle down to their ranches in Central American countries to fatten up for U.S. tables. Valuable land space in hungry Third World countries (e.g., Haiti) is used by the wealthy while the people there remain undernourished.

Some people have confused the message of *Diet for a Small Planet* to mean "if each of us only ate one less hamburger a week, the hungry could be fed". This is not what is meant. Your personal decision to skip a hamburger will not be easily translated into freeing the grains and other vegetable proteins in cattle feed for feeding people. World food distribution is much too complex and tightly controlled. Nonetheless the choice of a meatless diet can help call attention to the unsound use of world food resources. It can also be a start to breaking away from a meat-centered high-fat and often unhealthy diet. There are many important points for a vegetarian to discuss with family and friends who have questions.

CHART 1
Studies of pesticide residues in the U.S. diet



Adapted from *Diet for a Small Planet*, 1975 (revised edition), p. 34

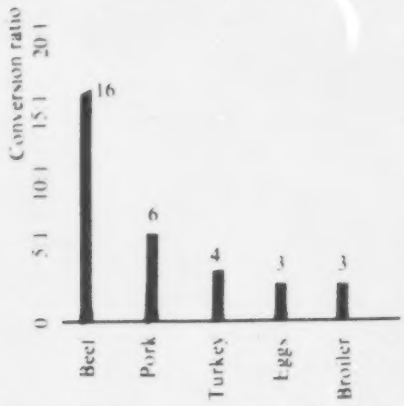
Do vegetables have nutritious protein?

The traditional diet of most people has been vegetarian combinations: beans and corn in Latin America, lentils and rice in India, soybeans and rice in China and Japan. Many Americans tend to look at these as starchy and lacking nutrients, but this is not so. These combinations work together to give *more* biologically useful **protein** than if each were eaten separately. The traditional combinations have evolved without the cooks knowing about the chemical nature of protein. Chalk one up for traditional wisdom.

CHART II

Livestock protein conversion efficiency

A protein factory in reverse

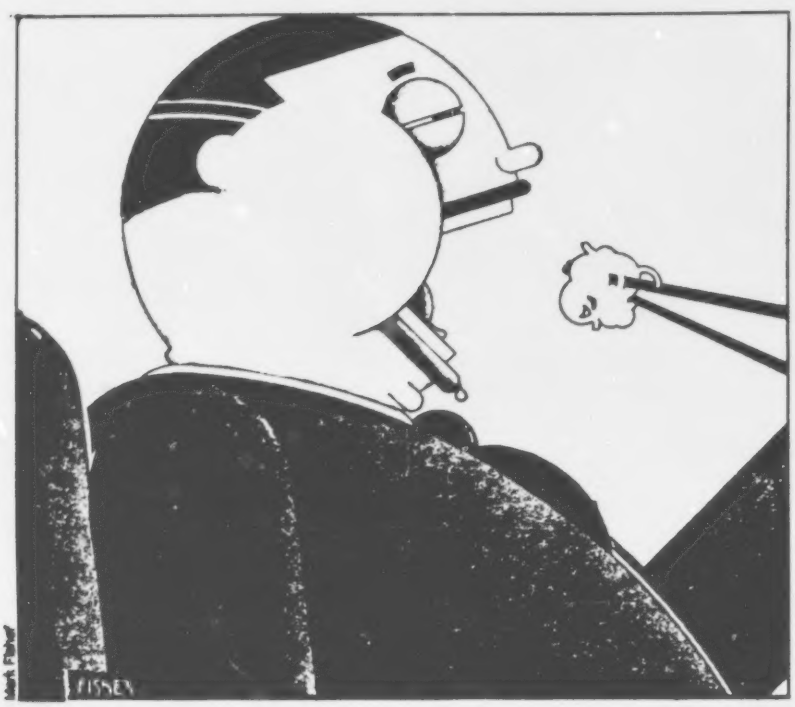


Source: USDA, Economic Research Service, Beltsville, MD

With modern knowledge of proteins we can explain why the traditional combinations work. The protein our bodies need is built into long chains of various combinations (like combining different letters of the alphabet to make different words). The units of these long chains are twenty **amino acids**. Eight of these amino acids cannot be made in our bodies and must be obtained from food. These eight "essential amino acids" must be eaten together if our body is to use them most efficiently. By themselves, grains, beans, seeds and nuts lack one or more essential amino acids and are called **incomplete protein**. But different plant foods lack different essential amino acids, so eaten together in the traditional combinations they give **complete protein.** When one protein food makes up for what the other lacks, it is called **complementary protein**. Meat is a complete protein, having all eight essential amino acids, but in eating meat a lot of fat and salt can also be obtained at a much higher price. Some good combinations for protein are the following:

* dairy products and grain (macaroni and cheese)
* grains and **legumes** (a bean burrito)
* seeds and legumes (roasted sunflower seeds and soybeans)

Eating vegetarian allows greater variety, less money spent, less fat and hormones and fewer calories. The pluses are many. Eliminating meat from your diet isn't necessary, but eating more vegetables and grains can be more healthful and enable you to help others see the wastefulness of meat-centered diets.



Activity 1 — I've never eaten that

The best way to learn about foods which are new is to taste them. The following recipes can be made in the classroom using electrical appliances. (The cookies can be brought in after being made at home). Most ingredients are available in the supermarket or you may want to explore a local food co-op or health-food store.

Akiko Aoyagi graphics from the Book of Tofu

Cereal crunch

2 1/2 cups regular oats
1/2 cup chopped peanuts or nuts
1/2 cup sesame seeds
1/2 cup sunflower seeds
1/2 cup nonfat dry milk
1/2 cup wheat germ
1/4 cup brown sugar, packed
1/4 cup corn oil
2 tablespoons cinnamon
2 teaspoons vanilla

Mix together oats, nuts, seeds, milk and wheat germ.

Mix brown sugar, cinnamon & oil until smooth. Combine the two mixtures and spread on a cookie sheet.

Bake at 300° for 1/2 hour, stirring every 10 minutes.

Cool.

Add raisins last 10 minutes.

This recipe can be prepared as well in an electric skillet.

Banana Shake

2 cups skim milk
1/2 cup yogurt
1 egg
1 tablespoon vanilla extract
2 teaspoons ground nutmeg
1 cup instant non-fat dry milk
1 medium sized banana, peeled and cut in chunks
1 6 oz. frozen orange juice concentrate, undiluted

Pour all ingredients into electric blender.

Blend at high speed for 10 seconds, until ingredients are slightly frothy.

Makes four, 1-cup servings.

Workbook/cpf

Carrot-raisin cookie

A tasty cookie high in minerals and vitamins

1/3 cup shortening
1/3 cup brown sugar
1/2 cup molasses
1 egg
1/4 cup dry milk
1 cup flour
1/4 teaspoon nutmeg
1/4 teaspoon cinnamon
1/2 teaspoon salt
1/4 teaspoon soda
1 teaspoon baking powder
1 1/4 cups quick rolled oats, uncooked
1 cup grated raw carrots or
1 cup grated raw sweet potato
1 teaspoon grated lemon rind (optional)
1/2 cup whole or ground raisins

Cream shortening, sugar, molasses, and egg together.

Combine dry ingredients, including rolled oats, and blend thoroughly.

Stir into creamed mixture.

Add grated carrots or sweet potato, lemon rind, and raisins. Stir until well mixed. (Dough should be stiff enough to hold shape on baking sheet. Grated sweet potatoes are drier than grated carrots. If dough is too stiff, add milk in small quantities.)

Drop by teaspoonfuls onto lightly greased cooky sheet.

Bake in hot oven (400°F) 15 minutes or until brown.

Yield: 5 dozen 2-inch cookies.

Carrot-raisin salad

2 medium carrots
1/3 cup raisins
1 tablespoon mayonnaise
1 teaspoon lemon juice

Chop or grate fine carrots.

Mix in raisins.

Add lemon juice and mayonnaise.

Mix all together well.

Changing the food system sounds like an impossibly big task if you think about the international size of the system and the power of the **multinational corporations**. But it is possible to begin changing the system in your own community. People on the block or in neighborhoods and towns have already begun to create alternatives on the local level and you can learn about what they are doing. You yourself may be able to work together with others to raise or prepare your own food. Even a campaign to change the lunch program at your school is a step in changing the system.

Food cooperatives

Food cooperatives or coops are local organizations of consumers who buy their food collectively. Thousands of coops exist around the U.S. in nearly every medium sized city. There are basically two kinds of consumer food co-ops: a *buying club* where food is bought in bulk and distributed collectively by all members, and another which operates with paid employees who manage a *storefront* for a much larger membership (from 100-2000) of which each member donates from 2-5 hours per month in return for the benefits of co-op membership. Storefronts are more likely to be found in larger cities.

In both types of co-ops, food is bought in bulk from a distributor or is bought directly from a farmer or market. This allows the membership to buy their food with a minimum of "middle-men". Because of this more *direct* connection between producer and consumer co-op members pay less for their food.

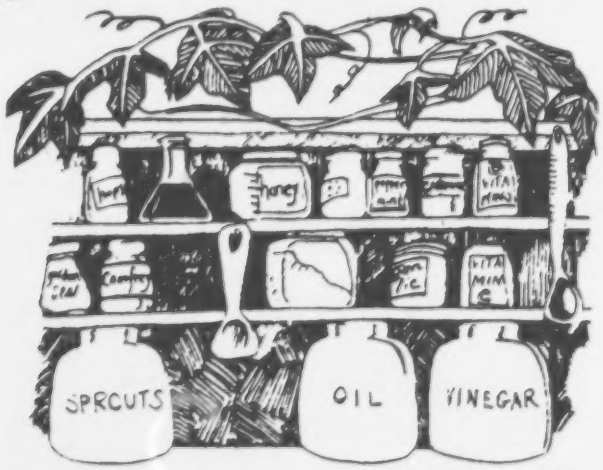
Nutrition Action

Cheaper food is a good reason for joining a food co-op. Co-ops are often centers for community activities. Most urban co-ops are

interested in nutrition education and other community events. People join co-ops to meet their neighbors and so, co-ops tend to be much friendlier places than supermarkets.

Often people join co-ops for political reasons. They don't want to see corporations making money from one of the necessities for their life. They would like to get their food as directly from the source as possible. Supermarkets are rarely owned by community members, whereas co-ops are run by the people that live in the neighborhood. Decisions in co ops are usually made as democratically as possible. Either elected co-op officials or the full membership determine what foods will be bought, how much foods will cost, what community activities to sponsor, etc.

Being a co-op member often means doing without the unnecessary packaging that most supermarket foods have. Members are asked to scoop their own peanut butter from a 50 pound tub or to weigh their own tomatoes. It means that you (the consumer) must do without some of the "convenience" of pre-packaged foods. It also means that co-ops must be strict about members fulfilling their work requirement. If members do not work, they usually cannot get the discount. Co-ops usually do not carry all products found in a supermarket. This depends on the size of the co-op. However members who are flexible as to their diets often don't need to shop in other stores to buy their food.



Workbook/CPF

Activity 1 — Visit a co-op

Make a list of questions you might ask while interviewing members of a food co-op or a manager of a storefront co-op.

For example: What are some of the reasons for joining a food co-op?

What are the disadvantages of a co-op compared with a supermarket? What are the advantages?

Why do you think people *don't* join co-ops?

Is working in the co-op convenient for you?

(To the manager) How does your job differ from a supermarket manager's?

Go to a local food co-op and use your questions to interview at least five members and at least one manager.

Discussion questions

In groups of four-six, compare your answers to interview questions with the answers other group members have obtained.

How did most members & managers feel about the co-op?

How did you expect the co-op to be different than it was? Were you surprised?

Would you join a co-op?

Why or why not?

Community gardens

In the last ten-twenty years more people have begun to grow their own food. In some cases, residents of highly built up urban areas grow their own food on roof-tops, terraces and window-sills. Other individuals have taken a *community* approach in which they have found a common plot of vacant land, often donated by the city or town, to grow their own food. In a community garden a group of people, anywhere from 2-100, share their tools, knowledge and labor in an effort to grow their own food. There are a number of important reasons why people choose to work in a community garden. First, it can be a very worthwhile experience to work alongside others who possess skills you might like to learn. Second, since you are growing the food yourself, you can be relatively sure of what is going into it. For example, you might not be sure how much pesticide residue is in the food you buy in the supermarket, but you are sure that none is in your garden. Third, community gardens can offer substantial savings over buying the food from stores or growing individual gardens since you can share tools and buy materials in bulk. Finally, participation in a community garden can be a lot of fun. It's a great way to get to know your neighbors or your classmates. And we always need some good exercise out-of-doors.

cpf

Activity 2 — Growing cheap but delicious tomatoes

In the following problem you are going to develop a plan for a community garden that is large enough for five-eight people. The size is 25 feet x 25 feet. For this lesson, the plan is theoretical, but you may decide to put your plan into effect when you have completed it.

The first step in developing a community garden is research. Before you can plant anything you must make sure you have access to a plot of land which has a.) good planting soil, b.) plenty of sun and c.) a nearby water supply. Hopefully, this 25 feet x 25 feet plot will not cost you any money to rent. There are many places in your city which might lend some of its property to members of the community for purposes of growing a garden.

As a group you should seek to answer the following questions:

Are there community gardens which already exist in the community? If so, how did those gardens get started? It would be worth your while to send at least two representatives to speak with members of that garden. If you are lucky you might be able to use an adjacent plot for your garden.

In the event that a pre-existing plot does not exist consider the following: Are there vacant plots of land in your city available for starting a new community garden? Often the best places to check might be a.) school land, b.) city or state department of parks, c.) vacant lots in your neighborhood — you should find out who owns them or d.) the grounds of churches or hospitals. You might even find people willing to make a trade of the land (and perhaps seeds, tools, etc.) for a few vegetables.

At this point you and 4-7 friends should have located an adequate plot for your garden. We will now examine whether you can save money over what you would buy in the supermarket.

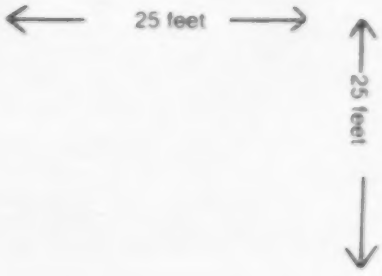
1. Take a look at the following chart of vegetables which may be grown on a 25 feet x 25 feet plot. As a group make decisions as to whether you would like to substitute one vegetable. Decide whether you would like to grow more of one of the suggested crops in place of another (e.g., 4 rows of tomatoes and no green beans).
2. Draw a map of a garden plot that will contain the vegetables you've chosen. Remember the distance apart you must space the vegetables and that it should all fit within your area of 25 feet x 25 feet.
3. What tools (e.g., spading fork, trowel, hose, watering can, hoe, rake) and materials (e.g., seeds, started plants, fertilizer, lime) would you need to run this garden? Ask friends, parents, and neighbors if you do not know. There are also lots of gardening books in public libraries.

a. How many of these tools and materials are available among the families of the students in your group? How many are available from other sources? Could any be donated by the school or town? Who could you ask to borrow from?

b. How much money would you need to spend on tools and materials you could not borrow from other sources? Be careful *not* to underestimate.

4. From your chart, determine how much the vegetables you will grow would cost in the supermarket. Use summertime prices for greatest

A sample 25' x 25' garden plot



accuracy because that is when vegetables are cheapest.
5. Compare the amount you would need to pay out for tools and materials to the amount the vegetables would cost in the supermarket. How much would be saved?

Remember: these savings do not take into account the work that you and your friends would be putting into the garden. Don't kid yourself. It's a lot of work and there is no getting out of it. From April to September there will always need to be someone on hand every few days to till the ground, plant the seeds, water the plants, weed the garden, and pick the vegetables. There is nothing worse than a garden that dies from neglect. So think about it before you decide to join a community garden. We believe that if you do, you'll find it to be a satisfying experience. There's *nothing* like eating a tomato you've helped grow with your own hands!

Discussion questions

With your classmates and teacher, discuss the results of your research into community gardens.

1. Do community gardens exist already in your neighborhood? How did they get started? How are they working?

2. Would you save money by growing food in a garden? Would it be too expensive an effort? Did you discover any hidden costs?

3. What obstacles to your gardening are in your way? Where can you find help?

4. Would you like to try to put your plan into effect?

John Bienchi graphic

Food Monitor

A sample 25' x 25' garden plot

Crop	number of rows	feet of row	spacing between rows	final number of plants	average yield
corn	several short rows	50	every 2 feet	50	75 ears
tomatoes	2	50	every 4 feet	20	100-150 pounds
carrots	2	50	1 1/2 feet	250 or more	25 pounds
green beans	2	50	every 2 feet	100-200	25 pounds
broccoli	1	25	every 2 feet	12	15 pounds
onions	2	50	1-1 1/2 feet	100	40 pounds
scallions	1	25	1 foot	-	25 bunches
cabbage	1	25	every 2 feet	10	30 pounds
peppers	1	25	every 2-3 feet	12	15 pounds

Note Some substitutions may be made for personal preference, such as:

parsnips for carrots
eggplants for peppers (40-60 fruit per 25 feet)
cucumbers for tomatoes (plant in hills of 2-3 plants per hill, yield 100 pounds from 50 feet)
squash for corn (plant in hills 4-6 feet apart of 2-3 plants per hill, yield 8 pounds per hill)
lettuce for cabbage (yield 25-30 heads per 25 feet)

Calculation chart for the cost of your garden

Costs of garden			Costs in market	
crop	cost of seed packets	cost of started plantlings	per pound or per unit	total market cost for equivalent yield
	+ _____	+ _____		
subtotal				+ _____
				Total
plot rental cost				
tool purchase or rental				
fertilizer				
other costs				
	+ _____			
Total				

Activity I — Congress votes

The following are actual laws among the many passed by the U.S. Congress which affect the present and future of agriculture and marketing. If you had been a Senator or a Representative at the time the bills were being debated, would you have argued for or against?

How would you have voted? Why?

Do you want these laws carried on into the future?

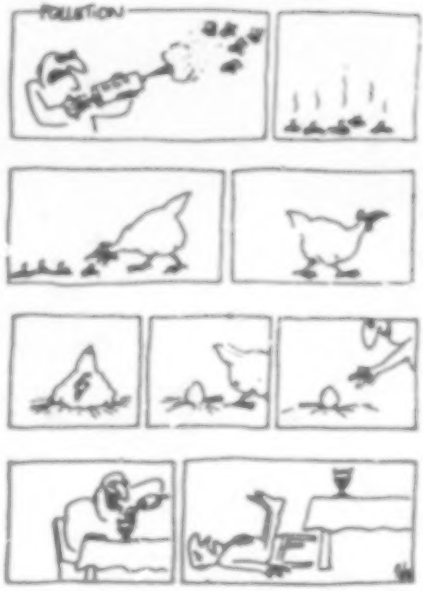
1. The government is authorized to help put the tobacco industry on a sound financial and economic basis.

2. The government is authorized to make money available to certain large producers in Hawaii and Puerto Rico to grow sugar cane.

3. Food additives which have not been adequately tested to establish their safety are prohibited.

4. The government is authorized to recruit and to transport farm workers from Puerto Rico and Jamaica to farms in the U.S. and to transport them back to their countries after the harvest.

5. The use of "Citrus Red Number 2" for coloring mature oranges is permitted.



cpf

Just as these laws above and others have laid the cornerstone of our current national food policy, laws will be passed now and in the next few years which will determine our future. Important decisions which affect the entire country or even the world are not made only in Congress. Our future will depend on decisions made in the boardrooms of **multinational conglomerates**. Consumer groups and citizen activist groups are working to affect the future directions of national policy.

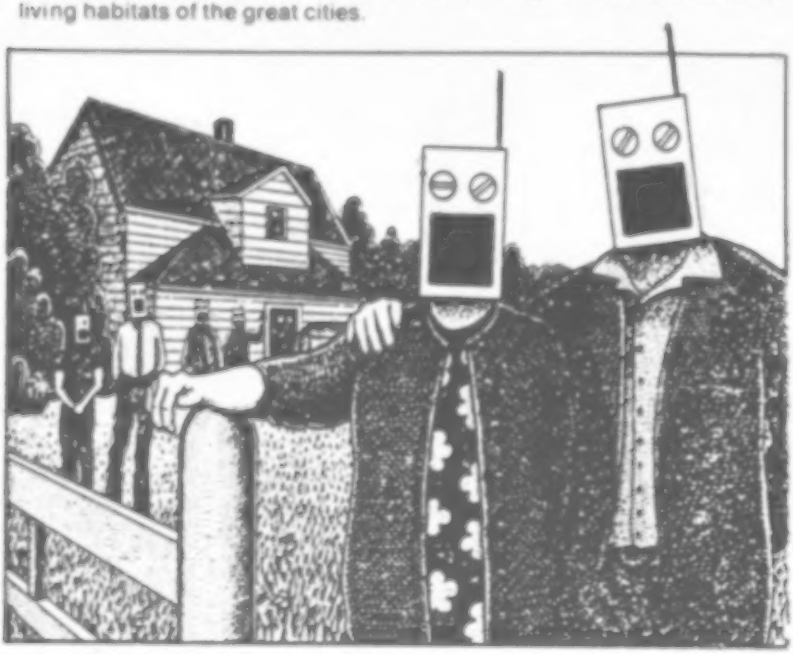
The crystal ball

What will the future be like? One can imagine all sorts of possibilities and science fiction stories have helped our imagination. Can we predict the future based on what exists today? Can we deliberately pick the future we want by sensible planning or is the direction we are going in out of our control?

The following two stories will take you to the year 2030. "Future I" is a very different picture of fifty years from now than is "Future II". After reading the two stories, decide if you would rather live in Future I or Future II. Which is the most likely one for 2030?

Future I: Beta and Yorl

Beta and Yorl were both fifteen years old when the final National Food Directive was issued in the year 2030. The Directive was handed down by the National Ministry of Food Production as the final step in what had been termed the "Foodstuffs of the Future Program." The central feature of this Program was a total commitment to ProTen Wafers. As of the year 2030, an appropriate kilogram allotment of the synthetic ProTen Wafers, with ten flavor formulas, was to be distributed as the primary food source to every family in the walled-in ultra-living habitats of the great cities.



Alan Segin

Beta's family had accepted the final tenets of the Foodstuffs of the Future Program without any question. After all, as Beta recalled her father saying: "What else can habitat dwellers like us do? When the Program first began a few people tried unsuccessfully to complain about the new food technology. But by now it seems as if we never ate anything besides ProTen Wafers."

To Beta the ProTen Wafers really were the only food she had known. She enjoyed using the formula-injector attachment of their home computer to apply the new flavors. These new flavors were more exciting, coated the wafers better and offered more selection than the older ones.

Beta had often complained to her Mom about how bad those old ice cream flavored wafers had tasted. That was when her parents would tell her again of real ice cream. It had been a favorite food of her parents, but the National Ministry had decided to do away with all such nonsynthetic foods and to centralize food production in mechanized complexes. Cows became extinct. The synthetic ProTen Wafers were developed to provide the appropriate amount of vitamins and nutrients as determined by scientific standardization. Food distribution

and production was placed totally under the regulation of the centralized Ministry. Beta's mother said that getting their monthly license for ProTen Wafers renewed reminded her of how her grandmother had needed a prescription to get medicines when she was younger.

To Yorl the new National Food Directives meant something different. His parents were descendants of the Old Order called farmers, who had planted seeds in dirt. The former farmers now worked in the new Centralized Production Complexes. These complexes were mechanized centers located at oil shale fields where oil was harvested for ProTen Pulp. Yorl's parents had worked for such a complex since the last farms for "natural foods" were ordered closed by the Ministry.

Yorl's parents still remember how during the period of Transition young people were told that they were no longer to work on the food farms. The Foodstuffs of the Future Program administrators directed the young people to work instead in the modern Centralized Production Complexes. The few who refused to do so were sent to re-education clinics.

Whenever Yorl would ask his parents about these changes he got the same old explanation. They would tell him about the Period of Transition which began to replace what were called "natural foods" with fortified foods, food supplements and the new synthetic dietary foods stuffs. Gradually, the National Ministers of Food Production did away entirely with produce. Soon people who asked for natural foods or produced them were considered dangerous to society and called health-food crazies. Now the Centralized Production Complexes were responsible for ensuring an adequate supply of ProTen Wafers.

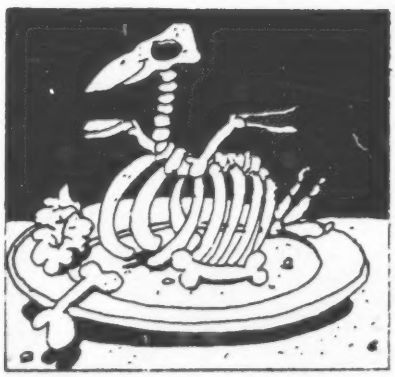
Yorl could only wonder about what further developments lay ahead.

Future II: Ai-Ling and Stepan

Ai-Ling and Stepan were eager to begin their senior year of high school. This year they would participate in an exciting program, *Food and Natural Resources*. Although from an early age, Ai-Ling and Stepan had been taught the importance of the wise use of food and natural resources, this year they would experience first hand how their food was produced and distributed.

The first stop for the class was the local cooperative farm. The farm was located only ten miles from the small city in which Ai-Ling and Stepan lived and so was in easy walking distance from the end of the monorail line. As their teacher explained, it was planetary policy in the year 2030 that food was to be produced as near the population centers as possible. This policy ensured that people could participate in decisions over their own local resources.

The cooperative farm was owned and farmed by a group of people who lived in the neighboring community. Decisions about how the farm was run were made collectively at meetings in which everyone participated. Stepan knew that his mother attended similar meetings at the worker-managed factory where she worked in the city.

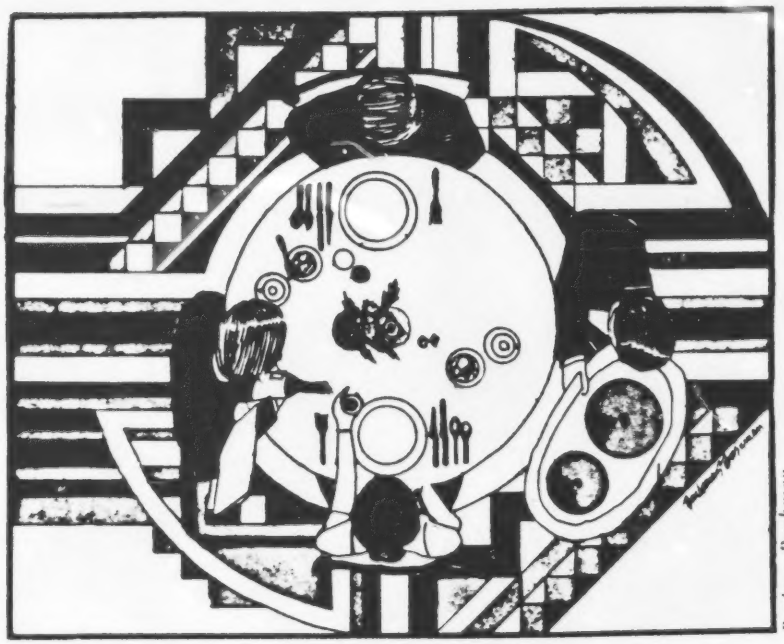


Members of the farm gave workshops for the students in which they demonstrated some of the problems of producing food efficiently as well as safely. They explained, for instance, that at one time farmers used to spray crops with large amounts of pesticides in order to control insects. This practice was destructive, however, since the pesticides not only poisoned the earth but also were linked to diseases in farmworkers and in many of the people who ate the sprayed food. These problems had gotten worse as stronger and stronger pesticides were needed to combat new varieties of insects that had become resistant to the chemicals.

The problem had been solved by a cooperative effort among the farm council, the soil management research council, and the distribution committee. Through collective meetings, it was decided to reduce the dependence on chemical pesticides by converting many of the farms to a polyculture system (row of several different kinds of crops were alternated one next to the other). This system made it more difficult for the insects to attack the crops. Second, the soil management research council argued for **biological control** methods appropriate for the problem pests. With the guidance of the distribution committee, people became accustomed before long to having some blemished fruits and vegetables. They saw this as a small price to pay for food free from poisons.

Breaktime

At the end of the morning's workshop, Ai-Ling and Stepan joined the farmworkers for lunch. The meal began with a fresh-picked lettuce and spinach salad topped with alfalfa sprouts and sunflower seeds. Stepan boasted a bit to Ai-Ling about the delicious lettuce he grew himself in his garden at home. The main course for lunch was a thick vegetable soup made with rich yellow squash, bright green beans and carrots, flavored with fresh herbs. Everyone shared their gardening tips on the meal's ingredients.



Barbara Bushmen

For dessert the class had their choice of fresh persimmons or one of the many varieties of apples grown on the farm. The farmworkers explained to the students that back in the twentieth century most of these delicious varieties of fruit were actually unavailable because the markets emphasized only foods which could be mass produced and mass distributed. People ate square-shaped tasteless tomatoes and the potatoes had actually been stamped into flat chips. "Yechh," said Ai-Ling.

Back to the farm

After lunch, the class learned how the food grown on the farms was distributed in the city. The city people who participated in the distribution committee developed a cooperative system which distributed food in the most-wholesome least-processed fashion while at the same time using as little energy and unnecessary packaging materials as possible. Since the food went directly from the farms to the co-op centers, there were no middlemen involved and therefore high-quality food could be sold for very nearly the cost of producing it.

A problem being discussed on the day of the students' visit was how to get people actively involved in choosing healthy diets for themselves. Stepan and Ai-Ling sat in on this meeting and ferociously took notes for their first report. It was not enough, the farmworkers knew, to simply make wholesome food available to the public at a minimum cost and with minimal damage to the environment. Ai-Ling spoke up and suggested that her family and neighbors would be willing to participate in a local diet council. The diet council would encourage people to try to adopt well-rounded diets and would give people information on food and health.

Participating in these activities could be a lot of work, the students discovered. Some people, it turned out, preferred to let someone else make the decisions. Most people, however, felt much happier knowing that they had the opportunity to better their own lives.

As the students returned home, they chattered about the list of favorite foods they were to bring to the next class.

Activty 2 — All the news that fits we print

Each of the following is a headline which might very well appear in your newspaper within the next few years. Some of the events reported point in the direction of Future I and others point to Future II? For each headline, you decide to which future scenario the headline might lead, and why. Mark your choice with a check in the table below.

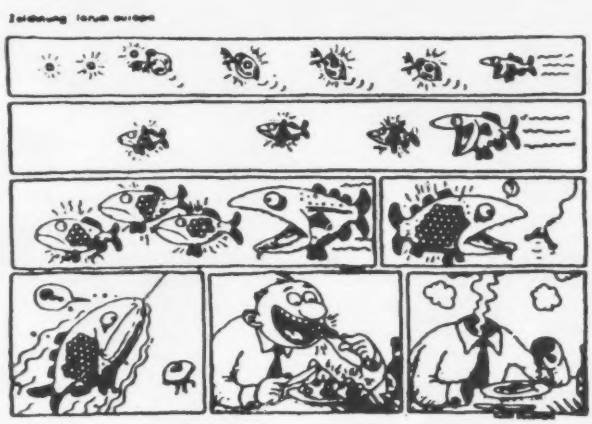
Would the consequences be desirable?

Which headlines would be most likely tc actually occur, considering current events?

Headlines

1. MegaChemco files patent: producing edible protein from petroleum oil
2. Department of Energy Promises Full Scale Development of Nuclear Power
3. Artificial Fruit and Vegetable Flavors: Government Subsidizes Research
4. Department of Energy States New Priorities for Decade: Solar and Wind Power
5. No Workers: FoodChem's Industrial Complex Entirely Computerized
6. Ultra-Vend: All Food Shopping by Vending Machine
7. Aging Process Halted: Birth-to-Death Slowed
8. Health Goals Reached: Planning of New Policy to Begin for Future
9. Southern Dairy Announces Computer Cow: Synthetic Milk
10. Last Fish Gulps Oil: Increased Oil Spills from Offshore Drilling Wipes Out Last Fish in Ocean
11. Computerized Distribution Centers Announced for Synthetic Foods
12. Meltdown of L.A. Nuclear Power Plant: Prime California Farm Land Destroyed
13. Hidden Roof-top Garden Found: Military Police Thought They Had Wiped Out Last Backyard Garden Two Years Ago

Future		Desirable		Likely to Occur	
I	II	yes	no	yes	no



West Germany/

Headlines

Future		Desirable		Likely to Occur	
I	II	yes	no	yes	no

14. Consumers Boycott Local Supermarket: Demand End to Sugar-Coated Hot Dogs

15. New Synthetic Flavor Introduced for Grain-less Bread

16. Local Community Garden Wins Award for Highest Yield of Sweet Corn Per Acre Ever Grown

17. Factory Workers Have Two Hours for Lunch to Cultivate Vegetable Plots

18. Free Health Benefits to All Who Grow Own Food and Participate in Community Physical Fitness Program

19. New Fall Color for Your Kitchen Fruit Basket: Blue Oranges

20. Lowest Cancer Mortality Rate in 50 Years Reached: Attributed to Increased Number of Physically Fit People

21. Farm Work Experience Incorporated into Student-Designed Curriculum at Urban Schools

22. Earthworm Population Rises After Near Extinction

23. Georges Bank Reports Largest Fish Catch Since 1890

24. MacDonalds Perfects the 5-Second Meal

25. Shellfish and Clams Reborn

26. International Panel Acts to Preserve World's Last Remaining Rice Plants

27. Eating Better: New Agricultural Crops Result in Better Use of Farmland to Feed More People Nutritiously

28. Polar Research: Team Finds New Source of Carbon for Tomorrow's Food

29. New Genetic Disease Linked to Chemical Fertilizer in Food

Mark Fisher

Discussion questions

1. Given present day situations, which future events that you marked as desirable are also likely to occur? (yes/yes)

2. How many of the events that you consider to be undesirable are likely to occur? (no/yes)

3. Pick five headlines you would like to see and give for each one your idea of just what happenings would make that future event happen soon.

UNIT IV
SECTION 5

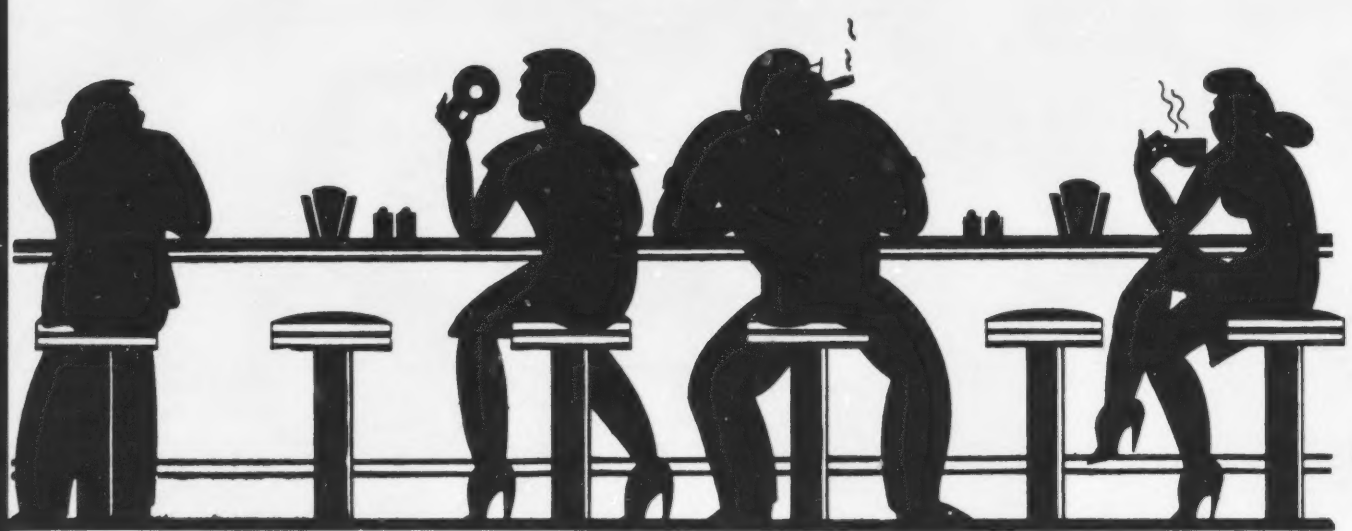
Global Visions

Personal is political

To bring about change which will correct the large problems of our food system, we must begin with smaller but equally important personal changes. It feels good to be more aware and healthier with whole grains, less fat, and less processed foods. A lot of satisfaction is gained from increasing awareness of what it is we eat, especially if steps are taken to make more decisions yourself. But personal change is not enough. It does not directly change what food products are available to us on supermarket shelves. It does not solve the food problems of poor people whose food choices are restricted by lack of money and unfair control. Even if we eat less meat, the **vegetable protein** cows would have eaten does not automatically become food for starving people. We must make personal changes but we must also move on to the next step. We must join together in groups on a neighborhood or community level and build on our personal changes.

Discussion questions

1. How do you help decide what food is bought by your family or how the food is prepared?
2. What changes could you make in your own daily diet? Why?
3. What changes would you like to make in your family's diet if you could?
4. Have you ever tasted brown rice, whole wheat bread, yogurt, sunflower seeds or other such foods? How do these compare with white rice, white bread, ice cream, and potato chips?
5. Do you feel good or bad after physical exercise? In what way?



We're in it together

Food cooperatives and community gardens, changes on the local level, are a necessary next step. We can feel strength from mutual support. It will be easier to obtain fresh unprocessed and whole foods cheaply if our co-op purchases directly from local farmers or if we grow our own. We can learn by sharing our ideas in food education projects and we can save money by sharing our labor. Local changes are well and good, but they do not go far enough.

As long as co-ops and community gardens stay small they can be ignored by nearby supermarkets. But if they grow enough to be competitive, expect the supermarkets to respond by cut-throat price slashing. A supermarket is usually part of a national chain and can afford to sell products at a loss in one store and make it up elsewhere in the chain. Even if the local co-ops establish a friendly regional network of cooperation, this will not match in any significant way the power of the large **agribusiness corporations** who often operate on a **multinational** scale. These corporations own monstrous farms and feedlots, have **monopolistic** control of many crops, can manipulate the consumer with costly advertising campaigns, and can dispose of surplus products in international markets. While we must join together in communal groups as a step toward bigger change, local changes are not enough.

Discussion questions

1. What organized groups do you belong to?
2. What can a group do that one person cannot do alone?
3. What kinds of stores sell food in your neighborhood and in your city? In what ways do they differ?
4. Why would a supermarket chain or agribusiness corporation discourage you from joining a food co-op or community garden?

Let's get the fat out

We can look to Norway for some exciting changes on a national scale. This **socialist** democracy has looked at its alarming increase in cardiovascular disease and has decided to act by deliberately changing its national food policy. Besides encouraging increased exercise for physical fitness, Norway is selectively applying both price supports and taxes to change which foods are available in the markets. To get away from the tradional emphasis of fatty foods, Norwegian dairies are paid to skim the cream off of milk. But even national changes are not good enough for feeding people in the less developed nations. **Hunger** is world-wide and its causes are not limited by national boundaries.

Discussion questions

1. Since the 1930s the U.S. government has at times paid farmers not to plant their land and has bought up surplus grain crops. Why?
2. What is the Food and Drug Administration supposed to do to protect our health?

3. Why has the cigarette industry fought the U.S. Surgeon General's report on smoking and lung cancer? Why does the U.S. Department of Agriculture still subsidize tobacco farmers?

4. Why do U.S. dairies supply skim milk products to supermarkets? Is it due to government-directed health reasons or other influences?

COPYRIGHTED CARTOON REMOVED

World hunger

There are many obstacles to solving the hunger problems of, for example, the people who work on the **cash-cropping** sugar and banana plantations of Central America. Sending a few dollars to CARE or to Foster Parents may be our usual response to the starving children we are shown on TV or magazine ads, but charity does not change the fact that **malnutrition** is due to poverty, and poverty is a question of lack of control of **resources**. Obviously the large landowners do not welcome any attempts of farmworkers to gain control of land to grow food for themselves, though this might reduce hunger. This threatens their ownership of land.

If we blame the backwardness of farming techniques and poor uneducated farmers for world hunger, we may look to modern technology for a "quick fix" to hunger and be no closer to a solution than from sporadic charity. Simply developing miracle varieties of rice or corn has not alone ended hunger, particularly when high yields per acre may depend on the use of high-pesticide, high-fertilizer, mechanized farming. First, only the richest farmers in Third World countries can afford such expensive inputs. Second, it would be insane for the U.S. to export its own extravagant style of agricultural technology dependent on petroleum, big machines and complex irrigation systems. These are expensive and generally destructive to the envrionment. New crop varieties must be introduced with a technology *appropriate* to the people who will use it and consistent with their local traditions of agriculture. Poor and hungry farmers must be involved in developing any improvements in their food-growing potential and in making sure they can understand and afford them.

Do not expect the government of many less developed countries

to push for land reform or for a halt in exporting cash crops. Many Third World governments have been propped up by the developed countries whose corporations exploit the cheap labor and abundant natural resources. Even in the poorest of countries, high government officials drive around in big limousines.

Discussion questions

1. In what different ways do Americans respond to world hunger? (ex.: Cambodia - 1979) Do any of these efforts work? Why or why not?

2. Does the U.S. federal government have a policy on hunger aid to poor countries? How does the U.S. government decide which countries to give aid to?

3. In what ways are we encouraged to give to international charities?

4. What does "private ownership of land" mean to migrant farmworkers?

5. What do poor people of a less developed country have to do to gain control of their governments so that it acts in the interest of the people?

6. Can you think of important problems in the world today where we expect scientists to come up with magical solutions?

COPYRIGHTED CARTOON REMOVED

Imperialism still lives

The reality of the modern-day world is that two **imperialist** superpowers — the U.S. and the U.S.S.R. (Soviet Union) — both control the Bomb and nuclear weapons capable of destroying world civilization. They are continuously vying for spheres of influence around the world (with the older colonial nations of Western Europe still sharing some of that power). There is every reason to believe that the superpowers will resist any change — economic, political, or social — which challenges their power. Not only does their great military power serve as a major obstacle to the realization of independence and self-sufficiency of less developed nations, but the U.S. and U.S.S.R. can threaten with the possibility of nuclear war when one challenges a sphere of influence of the other. This is seen currently as the U.S.S.R. and U.S. compete for energy resources of the Persian Gulf on which the U.S. depends.

Discussion questions

1. How real is the possibility of a nuclear World War III?

2. Find examples in the news of the U.S. and the U.S.S.R. competing for dominance or influence over any less developed countries.

COPYRIGHTED CARTOON REMOVED

We have met the enemy and it is us

The very enormity of these obstacles is overwhelming. The idea that people can run their own lives is shocking to many people. We tend to find it hard to believe that there could be a world with no bosses nor **bureaucracies**. How could we possibly feed ourselves without any directives coming down from the top of some **hierarchy**, whether from the boardroom of a multinational corporation or from a government bureaucracy of a centralized planned economy? We must not just sit back and wait for change to come, to be handed down by the "wisdom of experts". Even truly inspirational leaders must have participatory support for their programs to succeed. We must not let a feeling of helplessness be an obstacle within ourselves.

Discussion questions

1. What bureaucracies or hierarchies have you ever come up against?
2. Why is it that many Americans do not exercise their right to vote?

How does this compare with other countries? Why do most of us participate very little in running the government?

3. Do you believe that "you can't fight city hall"? Why?

4. What is a true democracy?

Making changes happen

Try to envision a future for the whole world in which the food production and distribution system would be under the control of the people who grow and eat the food. It would provide wholesome, nutritious, enjoyable and affordable food. This future system would protect and replenish natural resources so as to feed generation after generation. Those who labor to feed others than themselves could no longer be oppressed. There would no longer be exploitation of the resources of poor countries by countries richer and more powerful. You can complete the details of this vision yourself.

We should not feel defeated by the enormity of the obstacles which face us nor by the feeling that hunger will always be with us. As an example of the historical fact that it is possible to end hunger, we can look to the changes that have happened in China in less than 40 years. Pre-revolutionary China (before 1949) was characterized by hopeless backwardness, recurring famines, high infant mortality and a long history of being exploited by outside powers. In sharp contrast, a look at post-Revolution China finds a nationwide end to hunger, improved health, increasing literacy, and increasing involvement of the people in making decisions. China has not become, by any stretch of the imagination, a paradise, nor would we suggest that the Chinese experience should just be transplanted to America as a model for us. China's successes have been almost unbelievable but we can point to China and say: change can and has happened! The U.S. is *very* different and changes here would be like nowhere else.

Big changes do not happen suddenly. There are major obstacles to be recognized as inherent parts of our political economic system. But big changes can be built from smaller changes. We must join together and struggle. You can choose to be an activist and a change-maker. Will you help to make the future exciting and hopeful?

Discussion questions

1. What is your vision for the future (presuming anything is possible)?

2. What is your idea of a better system of food production and distribution?

3. Some people call a major change "revolution". What does "revolution" mean to you?

4. How is the background of the U.S. different from or similar to China?

5. Do you find the idea of becoming an active change-maker appealing? scary? an exercise in futility? too demanding? uninteresting? Explain why you feel this way.

Glossary

agribusiness large-scale high-technology corporations producing and distributing food, e.g. Tenneco

alternative technology small-scale decentralized ways of producing energy and manufacturing products — usually protective of the ecology, e.g. solar energy.

amino acids building block of protein. There are 22 amino acids which combine in an infinite number of sequences to make animal and vegetable protein.

anemia disorder caused by low number of red blood cells or low level of hemoglobin — person is easily tired and feels run-down.

arithmetic increase increase by repeated additions of a constant amount, e.g. 1,2,3,4,5.

aseptic free from disease-producing microbes.

authoritarian characterized by unquestioning obedience to authority -- lack of individual freedom.

biological control controlling crop pests without the use of chemical pesticides; may involve introducing predators or parasite species; or *pheromones* used = biological attractants which disrupt mating of specific insects.

blood pressure pressure exerted by blood against walls of arteries; has two parts: **systolic** — blood pressure when heart muscle pushing out blood. **diastolic** — blood pressure when heart muscle relaxing — alternates with systolic blood pressure.

bureaucracies administration or government authority through departments of officials with many subdivisions; implies inflexible routine.

Calories unit used to measure the energy content of food.

campesinos peasants or farm workers in Spanish-speaking countries.

capitalist class owners of wealth and the means of production in a capitalist society.

carbohydrate organic compound of carbon, hydrogen, oxygen: **complex** — starches, cellulose; **simple** — sugars.

carcinogens, carcinogenicity carcinogenic
1. substances causing cancer — certain chemicals, radiation, etc. which make cells grow wildly as tumors
2. ability to cause cancer
3. being able to cause cancer

cash crops crops grown to be sold in markets, not for home-use of people doing farming, e.g. cocoa, coffee.

caste class or social level according to family born into part of rigid Hindu system (used in India).

coal tars thick liquid made by distilling coal used to make many synthetic compounds e.g. food dyes, plastics.

colostrum mother's milk produced in first few days right after childbirth — especially rich in nutrients, hormones, and antibodies.

commodity anything bought or sold commercially.

competition (business) rivalry for limited markets or same customers.

complementary protein two proteins which eaten together give the complete set of essential amino acids needed for growth and repair, e.g. soy and wheat.

complete protein a protein food with all eight essential amino acids serving the body best, e.g. meat, dairy products

conglomerate several industries and companies working together as one big corporation.

contract legal agreement, usually written formally.

contraceptives any birth control devices including chemicals and mechanical means.

control (in experiments) a basis of comparison for interpreting experimental results.

convenience (foods) making food preparation less difficult and less complicated.

credit amount of money, available for loans depending on bank's decision about your ability to repay.

deceptive intended to deceive or fool by fraud or by creating an illusion.

deferred bribe bribe — anything (especially money) given or promised to a person so he/she will do something illegal or wrong; **deferred** — postponed.

deficiency disease a disease caused by lack of vitamin, etc. in diet e.g. rickets caused by lack of vitamin D.

dental caries tooth decay.

depleted, depletion emptied or exhausted.

DES - diethylstilbesterol synthetic hormone chemically similar to estrogen (human female sex hormone); used to fatten cattle and also given to women to both maintain and prevent pregnancy; known to be carcinogenic.

diversification, diversify variety — in business, investment in entirely different types of industries, etc. e.g. Pepsico owning Wilson tennis equipment.

ejidos, ejidatarios
1. government-owned farms (often taking over from large landowners);
2. farmers who share ejido land communally, their own shares being inherited by their children.

ethical according to moral standards of "right-and-wrong".

ethnic names names which traditionally characterize groups of people with their own customs and languages.

export, import
1. export - to send goods to other countries for sale
2. import - to bring into country from outside.

free enterprise economic system ostensibly permitting private industries to operate with minimum control by government.

GRAS list (Generally Recognized As Safe) list of food additives allowed by F.D.A., started in 1958 with additives then common in food products.

geometric increase a sequence of numbers gotten by repeated multiplication by a constant quantity e.g. 2,4,8,16,32,etc.

glucan sticky polysaccharide (large carbohydrate, like starch or glue) made on the teeth by mouth bacteria from sugar.

grains "staple" or basic food for most people, e.g. wheat, corn, rye, barley, rice, millet.

heart attack stoppage of normal heart pumping, usually due to lack of oxygen to part of heart muscle.

hemoglobin red pigment (coloring) of red blood cells which carries oxygen from lungs to tissues of body.

hierarchies groups of persons arranged in order of rank, grade or class.

hunger state of needing or desiring food.

hypertension = high blood pressure blood pressure higher than is normal for age, weight and sex.

imperialist refers to the dominance or control over less developed countries for the purpose of extracting raw materials or ensuring world markets and wealth; the use and abuse, and the ignoring of other people for one's own welfare and convenience.

incomplete protein refers to a food with some but not all the eight essential amino acids e.g. corn and beans separately are incomplete protein; eaten together they are complete protein.

iron metallic element, symbol Fe, required by body for making hemoglobin of blood; iron deficiency causes anemia.

kidney failure stoppage of waste-filtering from blood by kidney organs.

kwashiorkor severe deficiency of protein, starvation disease.

legumes foods such as soybeans, lima beans, black beans, lentils, peas and peanuts which provide high quality protein when mixed and eaten with grains.

malnutrition too much or too little of a nutrient leading to ill-health e.g. obesity, anemia.

marasmus deficiency of proteins and Calories; starvation disease.

marginalized made economically unprofitable, often by farming the worst land with oldest poorest techniques; pushed to the outside.

modern hospital-style training education of medical doctors in large centralized university hospitals with sophisticated diagnostic tools and high-technology equipment.

monopolistic refers to a monopoly with exclusive control of the market for a certain product or service, so as to fix prices and eliminate competition.

mortality, mortality rate, infant mortality rate
1. death
2. deaths per 1000 per year
3. deaths per 1000 per year of babies less than one year old.

multinational corporation doing business in many nations; also called **transnational** e.g. Nestle.

obesity state of being very fat (usually 30% above average weight for height, age, and sex); a form of malnutrition.

patriarchal ruled by father or men.

pellagra disease caused by lack of nicotinic acid (a B vitamin), affecting intestines, skin, and nerves.

petrochemicals synthetic compounds made from petroleum oil e.g. plastics, food dyes, fertilizer.
dyes, fertilizer.

plaque thin layer accumulating on teeth from bacterial deposits, also refers to hardened fatty deposits lining blood vessels.

preservative any substance added to food to keep it from spoiling; refers to any method of keeping food fresh.

proteins complex nitrogen-containing compounds made up of long chains of **amino acids**
vegetable protein contained in fruits, grains, and all plant cells
animal protein in meat, fish, milk, egg white.

R.D.A. (Recommended Daily Allowance) 100% RDA = amount of a nutrient suggested for prevention of deficiency disease and for average health.

renewable resource, nonrenewable resource
resource - natural wealth taken from the earth
renewable - able to be replaced by a new supply e.g. trees
nonrenewable - limited amount available in earth, not to be restored e.g. fossil fuels (oil, coal)

rickets disease due to lack of vitamin D (or calcium) or lack of sunlight; bones become soft and bent.

risk-benefit
risk - hazard, chance of damage;
benefit - any favorable or giving advantage
taken together, used to assess the impact of a procedure

risk factors characteristics associated with a higher than average incidence of a health problem, e.g. high blood

pressure and smoking contribute to a person's chance of developing heart disease and are therefore risk factors.

scurvy disease due to lack of vitamin C - bleeding gums, bruising easily and weakness or anemia are symptoms.

socialist refers to ownership and operation of the means of production and distribution shared by all members of the community.

standard of living level of subsistence; refers to how adequate the necessities and comforts in daily life are.

starvation long-term lack of food; diseased state.

status quo the existing state of affairs.

stays of execution delays or postponements of legal actions (such as death sentences).

stroke stoppage of oxygen supply to part of brain, usually paralyzing parts of the body.

subsidiary a company owned by another company e.g. Frito-Lay is a subsidiary of Pepsico.

subsidize, subsidy
subsidize - to provide support
subsidy - usually a government grant of money to a private enterprise considered "of benefit to the people".

synthetic produced by artificial chemical combinations, not of natural origin. e.g. rayon, deodorant.

tolerance (levels) refers to the amount of variation allowed, levels above which are not permitted.

torula yeast microbe which can feed on petroleum by-products as a source of protein for constructing synthetic foods such as soups, meat products, barbecue chips.

toxic, toxicity
1. poisonous, capable of being lethal (deadly)
2. state or degree of being toxic

undernutrition lack of or insufficient amounts of nutrients essential for good health.

vegetarian a person who eats no meat; **lacto-ovo vegetarian** - will eat milk, dairy products, and eggs; **vegan** - will eat *no* animal products.

vertical integration refers to a business or corporation which controls *all* phases of production and sale e.g. a seed company also makes the tractors, final product packaging, materials etc.

vitamins complex organic substances in foods essential for normal body functions; contain no Calories and are necessary for life.

vulnerable easily wounded, open to attack.

"Western" life style manner of living, including customary dress, behavoir and customs characterized especially by the U.S., Canada, Europe and Japan; consumer-oriented way of living.

working class those people who earn a living by selling labor (traditional Marxist definition - industrial proletariat).